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The Hunterian Lectures
ON
PHLEBITIS AND THROMBOSIS.

Delivered before the Royal College of Surgeons of England on March 5th, 7th, and 9th, 1906,

BY WARRINGTON HAWARD, F.R.C.S. ENG.,
HUNTERIAN PROFESSOR OF SURGERY AND PATHOLOGY IN THE ROYAL COLLEGE OF SURGEONS OF ENGLAND; CONSULTING SURGEON TO ST. GEORGE'S HOSPITAL; PRESIDENT OF THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

LECTURE I.

Delivered on March 5th.

MR. PRESIDENT AND GENTLEMEN,—It has always seemed to me that our interest in a disease should be in proportion not to the rarity but to the commonness of its occurrence. It is true that the careful investigation of an unusual affection may throw a light upon some pathological process which is common to other diseases and thus give a wider significance than would at first appear to belong to such observations; but surely the study of conditions which we are frequently called upon to treat must possess for us a still greater importance. I have therefore ventured to devote the lectures which I have the honour to deliver here to the subject of thrombosis and phlebitis, conditions which are of no uncommon occurrence and concerning which there yet appear to me to be some points worthy of consideration. I am the more encouraged to ask your attention to this topic because, having for some years been making and collecting observations relating to thrombosis, I have found that the remoter effects of the disease do not seem to have attracted much attention from surgeons.

Coagulation of blood within the living vessels occurs under a variety of conditions of which the mode of origin is in some cases well understood and sufficiently obvious, while of others it is obscure and difficult to explain. A thrombus may be the result or the cause of inflammation of the containing vessel; it may be determined by a change in the blood or by a change in the vessel which contains the blood.

As the fluidity of the blood and its proper circulation depend upon the maintenance of the normal physiological relations between the blood and the vessels, conditions which disturb these relations will give rise to thrombosis. The most obvious of such disturbing conditions are traumatic. A wound, laceration, or contusion of a blood-vessel may lead to the formation of a thrombus by interfering with the integrity of the vessel wall. Other injuries, such as burns and fractures, neighbouring irritation or suppuration, or anything giving rise to inflammation of the vessel, are causes of thrombosis. So also degeneration of the arterial or venous coats, dilatations, aneurysms and varices, and pressure or other causes of retardation or arrest of the blood stream in the vessel and in the vasa vasorum may give rise to the formation of a thrombus. Other causes of thrombosis are changes in the blood, of which some of the most important are due to the invasion of micro-organisms. There is an increased tendency to coagulation of the blood in anæmia and chlorosis, in phthisis and other debilitating diseases, in certain acute diseases, after fevers, hæmorrhage, and long-continued suppuration, and in conditions of exhaustion.

The process of coagulation has been much discussed and the relative importance of the factors in its production is still undetermined. The presence of fibrinogen and fibrin ferment is certainly essential and probably also the presence of a soluble salt of calcium; but the source of the fibrin ferment remains a matter of dispute. Cohnheim and others have maintained that the leucocytes play the chief part in the process of thrombosis. Schmidt of Dorpat and his followers stating that the leucocytes by disintegration form fibrinoplastin or paraglobulin and the ferment—the fibrinogen existing naturally in the blood plasma; while, on the other hand, Eberth and Schimmelbusch, followed by numerous other observers, attribute the greater importance to the blood platelets.

This much may, I think, with some confidence be stated: that healthy blood contained in normal vessels consists of a fluid (the plasma) which holds in solution a proteid material (fibrinogen); in this fluid are suspended the red corpuscles, the various colourless corpuscles, and the blood platelets; that if the normal relations between the blood and the vessels are disturbed coagulation may occur; and this involves the appearance in the blood (probably from changes in the colourless corpuscles and platelets) of a nucleo-proteid, which with a soluble salt of calcium forms fibrin ferment, and this acting upon the fibrinogen of the plasma leads to the formation of fibrin which with the entangled corpuscles forms the clot.

There has been a good deal of difference of opinion as to the origin and function of the platelets, some observers maintaining that they do not exist in normal blood but are the result of the disintegration of the corpuscles; others that they may exist in normal blood but that they are derivatives of the leucocytes or of the red corpuscles; others, again, that they are the progenitors of the red corpuscles. But the tendency of recent researches has been to regard the platelets as independent elements of the blood and to attribute to them an important influence in the process of coagulation. The evidence in this direction seems to me to be convincing.

Although the blood plates were described as long ago as 1842 by Donné in a paper on the origin of the corpuscles of the blood, and various theories concerning them were promulgated from time to time, it was Bizzozero's[1] paper published in 1882 which aroused a fresh interest in these bodies and led to much new investigation. Bizzozero maintained that the blood plates were definite and regular elements of the normal circulating blood, and though this was disputed by other observers his observations have since been abundantly confirmed.

Professor W. Osler[2] in his Cartwright Lectures on the Physiology of the Blood Corpuscles, published in 1886, records a number of interesting observations upon the blood plates. He agrees with Bizzozero that they are normal elements of the blood and he points out that their tendency to agglutinate and to undergo rapid changes when the normal conditions are disturbed renders them extremely difficult to observe and that this may account for the discrepancies in the descriptions of various observers. This agglutination is quite different from that of the red corpuscles; they do not form rouleaux but become fused together in a granular mass. Professor Osler gives the relative number of the plates as about 1 to 18 or 20 of the red corpuscles (a lower estimate than most observers) and he found that the number varied in conditions of disease. In the formation of a thrombus he observed that the blood plates were the first elements which collect upon the vessel wall and that in the process of coagulation the fibrin filaments spread chiefly, though not exclusively, from the plate masses as centres. He saw no indication whatever of the disintegration of leucocytes.

Dr. Robert Muir in his papers on the Physiology and Pathology of the Blood,[3] published in the *Journal of Anatomy and Physiology* for 1891, has given a most careful description with beautiful drawings of the blood plates, together with directions as to the best way of observing them. In fresh undiluted normal blood, examined a few seconds after withdrawal from the vessels, he found numerous blood plates among the red and white corpuscles. He describes them as round or oval disc-like bodies, about one-fourth the diameter of a red corpuscle, slightly convex, faintly granular, and colourless. His observations show that in their staining reactions, in their structure, and in their chemical composition they differ from all the other elements of the blood and that they have definite characters peculiar to themselves. In shed blood they rapidly undergo certain changes connected with the process of coagulation. They become adhesive, stellate, more granular and refractile, and are soon aggregated into small groups. After about three minutes the formation of fibrin commences, delicate threads of which appear round the groups of altered blood plates. These changes can be prevented or retarded by various methods which prevent the coagulation of the blood, such as the addition of neutral salt solutions or exposing the

[1] Virchow's Archiv, vol. xc., p. 261.
[2] Cartwright Lectures on the Physiology of the Blood Corpuscles, Medical News, 1886, p. 365. See also Osler on the History of Blood Platelets, Johns Hopkins Hospital Bulletin, May, 1906.
[3] The Physiology and Pathology of the Blood, by Dr. Robert Muir, Journal of Anatomy and Physiology, 1891, vol. xxv., p. 256.

blood to a low temperature. On the other hand, if a foreign body is introduced into the living vessels, or if the vessel by injury or otherwise loses its normal condition, the blood plates undergo the same changes that they do outside the vessels, adhering to each other, to the foreign body, and to the vessel wall, and becoming fused together into a granular mass, which is the starting point of a thrombus.

Professor G. T. Kemp and Miss H. Calhoun communicated some important observations with regard to the blood plates to the International Congress of Physicians at Turin in 1901.[4] As the result of 75 observations on 19 different individuals they estimated the average number of platelets in normal blood as 778,000 per cubic millimetre.[5] "The number bore no definite relation to the number of leucocytes but the ratio to the number of red corpuscles was fairly constant. The connexion of the blood platelets and the leucocytes with coagulation was determined by a method which the authors proposed to name 'fractional defibrination.' A certain fraction of the calculated blood of an animal was drawn, defibrinated, filtered, and returned to the circulation. This process was repeated until fibrin was no longer formed. At each stage the red corpuscles, the leucocytes, and the platelets were counted." "The platelets disappeared progressively with each defibrination and after the blood ceased to be coagulable (from the sixth to the tenth defibrination) they were no longer present. The leucocytes disappeared to some extent but never completely. The red corpuscles suffered some diminution but much less than the leucocytes." The platelets were seen to be bi-concave but they were never found to contain traces of hæmoglobin and therefore could not be regarded as hæmatoblasts in Hayem's[6] sense. "The micro-chemical reactions resembled to some extent those of red corpuscles and also those of the nuclei of leucocytes but were identical with neither." "The authors agreed with Bizzozero that they were independent elements of the blood." Dr. A. Petrone of Naples at the same congress related researches pointing to the same conclusions as to the independence of the blood platelets as separate elements of the blood. Wooldridge remarks in this connexion: "Blutplättchen are regarded by all observers who have attacked the problem as definite form elements, by which I understand them to mean organised bodies; and it is difficult to know how else to regard them, for they have just as much right to be regarded as a form element as a red corpuscle has. Many attribute to these bodies, in regard to coagulation, the powers which Schmidt has referred to the white corpuscles. I think they are perfectly right."[7] But Wooldridge maintained[8] that fibrin could also be produced as the result of an interaction between two or more fluid fibrinogens or proteid-lecithin compounds of different chemical composition, of which interaction the fibrin ferment is a by-product; and he drew attention to the important part played by lecithin in the process of coagulation. Professor W. D. Halliburton and Professor T. G. Brodie[9] have shown that nucleo-albumin, free from lecithin, obtained from the tissues of various organs, when injected into the circulation of rabbits produces instantaneous and fatal coagulation of the blood; and they consider it probable that in cases of fatal and extensive thrombosis occurring in the human subject death may be due to the entrance into the blood of the same material.

> "..... with a sudden vigour, it doth posset
> And curd, like eager droppings into milk,
> The thin and wholesome blood."[10]

Moreover, Professor A. E. Wright has proved that the addition of lymph to blood notably accelerates coagulation[11] and that the administration of chloride of calcium has a most marked effect in increasing the coagulability of the blood in the living subject.[12] Evidently, therefore, the chemical composition of the blood may have an important influence in diminishing or increasing the tendency to coagulation. Wooldridge[13] showed that the injection of laky blood—i.e., blood in which the red corpuscles have been dissolved—gives rise to intravascular clotting and that the active agent is not, as used to be thought, the hæmoglobin, but the stromata of the red corpuscles, the protoplasmic framework in whose meshes the hæmoglobin is contained, and which is a complex proteid-lecithin compound. Wooldridge's work in relation to the chemistry of coagulation is extremely suggestive and although his conclusions are not all universally accepted his papers are well worth careful study. The chemistry of the blood is an investigation of extreme difficulty, because directly the blood is removed from the blood-vessels it undergoes important changes, so that it is difficult to reason from experiments in the laboratory to the vital chemistry of the living body. As Wooldridge said, "Genetically considered, both blood and endothelium are differentiations of one and the same protoplasmic mass. The blood is merely the more fluid central part of the originally solid protoplasmic cord. The blood and the vascular wall may then be looked upon as a protoplasmic unit. That the vascular wall exerts a great influence on the blood is evident from the fact that the blood undergoes changes which finally terminate in coagulation so soon as it leaves the vascular wall."[14] Hunter said[15]: "It must be evident that the fluid state of the blood is connected with the living vessels, which is its natural situation, and with motion." And again: "While the blood is circulating it is subject to certain laws to which it is not subject when not circulating."[16]

Recent investigations show that the first stage in the formation of a thrombus is the accumulation and viscous change of the blood platelets, which adhere to each other and to the wall of the containing vessel; to these are soon added numerous leucocytes; fibrin ferment is set free and fibrin appears, entangling more or less of the red corpuscles. It is evident that this process will be favoured by a retardation of the blood stream, while, on the other hand, in the large arteries near the heart, where the current is powerful, small quantities of clot will be easily swept away and a thrombus less easily formed. This, moreover, is in accordance with clinical experience, for thrombosis is more common in veins than in arteries, and it is specially prone to occur in positions in which the circulation is apt to be impeded. Moreover, von Recklinghausen has directed attention to the manner in which thrombosis is favoured by the eddies produced in the blood stream by cross currents, irregularities of surface and variation in the size of the vessels, and by obstruction to the blood flow. Retardation or arrest of the blood current, although favouring the occurrence of thrombosis, is not in itself sufficient to cause it, for it has been shown by Baumgarten that healthy blood will remain fluid for weeks or months, though shut off from the circulation in a vessel between two carefully applied aseptic ligatures. But free circulation is necessary for the nutrition both of the blood and the vessels; slowing of the current, therefore, by diminishing the normal influence of the lining membrane of the vessels upon the blood cells and by lowering their vitality, may set free the fibrin ferment and thus lead to thrombosis. Eberth and Schimmelbusch,[17] moreover, have observed that in the normal blood current the platelets travel with the red corpuscles in the axial stream, while the white cells move in the outer, slower stream. A slight retardation leads to an increase in the number of white cells in the outer zone but not to thrombosis; but on a further slowing of the current the platelets are found in the peripheral stream and in contact with the endothelium, and it is upon these collections of platelets that the fibrin is first deposited which is the commencement of a thrombus.

It would seem then that thrombosis may depend upon a variety of conditions and is usually due to a combination of

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[4] Reported in Brit. Med. Jour., vol. ii., 1902, p. 1539.

[5] It will be remembered that in normal blood the number of leucocytes per cubic millimetre is about 10,000, the number of red corpuscles per cubic millimetre is about 5,000,000. Messrs. Brodie and Russell estimated the number of blood platelets as 635,300 per cubic millimetre or 1:8·5 of red corpuscles. Dr. J. H. Pratt of Boston, U.S.A. (Journal of the American Medical Association, Dec. 30th, 1905, p. 1999), gives the average number of platelets per cubic millimetre as 469,000.

[6] Dr. Robert Muir came to the same conclusion as to Hayem's theory. Op. cit., p. 500.

[7] Wooldridge: The Chemistry of the Blood and other papers. Edited by Horsley and Starling, 1893, p. 177. After I had written these lectures my friend, Dr. G. A. Buckmaster, kindly allowed me to read the proofs of part of a lecture in which he treats of the origin of the blood platelets and records his investigations into the subject. Dr. Buckmaster has come to the conclusion that blood platelets do not exist in normal living blood but are pathological or artificial products. I have the greatest respect for Dr. Buckmaster's views but I do not understand how Dr. Buckmaster's negative observations invalidate those of observers (Eberth and Schimmelbusch) who have seen the platelets in the vessels of the living mesentery or (Laker) in the membrane of the wing of the young bat.

[8] Wooldridge: Ibid., pp. 190, 241. This statement was based on observations made with "peptone plasma" and was controverted by Halliburton and others. See Journal of Physiology, vol. ix., p. 270.

[9] Brit. Med. Jour., vol. ii., 1893, p. 632.

[10] Hamlet, Act I., Sc. v.

[11] Journal of Physiology, vol. xxviii., p. 514.

[12] Brit. Med. Jour., July 29th, 1893, p. 233, and July 14th, 1904, p. 87; THE LANCET, Oct. 14th, 1905, p. 1096.

[13] The Chemistry of the Blood, p. 167.

[14] Ibid., p. 180.

[15] Treatise on the Blood, &c., p. 24, 1794.

[16] Ibid., p. 851.

[17] Virchow's Archiv, vol. ciii., p. 38.

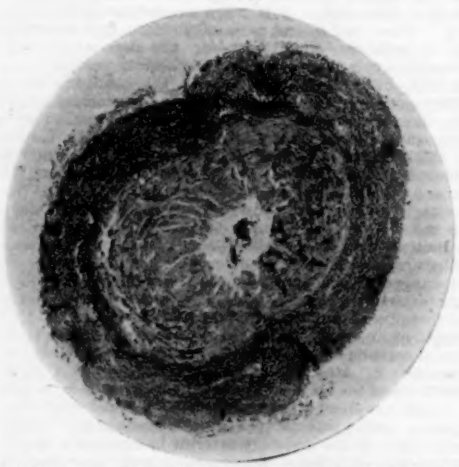
several. Lesions and degeneration of the vessel walls, impaired nutrition of the endothelium, retardation of the blood current, changes in the composition of the blood and in the proportions of its formed elements, the invasion of micro-organisms,—any or all of these may play a part in the process, the predominant factor varying.

If the movement of the blood in a vessel is arrested, as by a ligature, the coagulum formed from the stagnating blood consists of fibrin, together with both red and white corpuscles, and resembles microscopically a clot formed in blood outside the vessels; it is of red colour and is spoken of as a *red* thrombus. If the thrombus is formed from blood in motion it is usually of a grey colour (the so-called *white* thrombus) and consists of fibrin, leucocytes, and blood platelets. A clot thus formed may, however, entangle a variable number of red corpuscles which will give to it a more or less red colour. The softening which occurs in the centre of these thrombi is due to the liquefaction of the blood plates. Such a thrombus starting in a vein from some point of injury or, as often happens, forming above the point of attachment of a valve, extends to a variable distance chiefly in the direction of the blood current. Thrombosis may be simultaneously of wide extent, or the process may spread gradually along the vessel towards the heart, obstructing long tracts of vein and giving rise to very extensive propagation of the thrombus. Extensive thrombi thus formed will present alternations of red and white thrombus. The original white thrombus extending across the vessel forms a barrier to the blood current, stagnation occurs as far as the next branch, and thus a red thrombus is added to the white; upon this the circulating blood deposits fresh white thrombus until stasis and coagulation again take place. A third variety of thrombus is the *hyaline* thrombus which consists of colourless, translucent, homogeneous material which stains after the manner of fibrin. This is found chiefly in the capillaries and small vessels and is usually associated with infective diseases. The small vessels of acutely inflamed tissues may be found obstructed by thrombi consisting almost entirely of polynuclear leucocytes; or sometimes, as in hepatised lung, the vessels may be occupied by purely fibrinous coagula. But these are of *inflammatory origin* and of quite different significance to the thrombi above described.

If there is no infection of the blood a thrombus may become organised or it may undergo disintegration and be carried away in the blood stream without doing any harm.

The organisation of a thrombus is accomplished by the

FIG. 1.



Obliterating arteritis. Showing coats of vessel much thickened and organising and adherent clot.

shrinking and cracking of the clot, into the fissures of which leucocytes pass from the vessel wall, and capillaries extend from the vasa vasorum. By this means the clot is gradually absorbed and its place taken by newly formed connective tissue which is adherent to the lining of the vessel and which, shrinking after the manner of scar tissue, becomes less and less vascular until only a fibrous cord remains. (Fig. 1.) The thrombus thus organised may adhere in a layer of varying thickness to the vessel wall or may form a plug completely occluding the vessel, or a channel may be formed through its centre or between the clot and some part of the vessel wall, leaving the vessel with a diminished lumen. (Fig. 2.) If disintegration of a

FIG. 2.

Arterial thrombosis. Coats of artery not thickened but vessel containing adherent and channeled clot.

thrombus occurs softening begins in the centre or at the end of the clot and extends until the whole is broken up into a finely granular débris which is carried away in the circulating blood. This is a process which is frequently to be observed, especially in varicose veins, and does not usually give rise when the clot is not infective to any serious symptoms. But if the whole, or a considerable fragment, of a clot becomes dislodged and carried into the circulation dangerous embolism may occur with results that will be described later.

Softening commencing in the centre of a thrombus does not always lead to its complete disintegration but may result in the production of a thick greasy brown fluid completely shut in by the outer layers of the thrombus. The inclosed fluid somewhat resembling, and formerly mistaken for, pus consists of the granular and oily débris of the broken-down corpuscles coloured by blood pigment. Occasionally calcareous changes occur in thrombi giving rise to phleboliths—concretions consisting principally of phosphate of lime with about 20 per cent. of proteid matter and a little sulphate of lime and potash. Although sometimes met with in arterial thrombi they are found chiefly in the dilated pouches of the veins of the lower extremities and pelvis.[18]

In septic thrombi softening, disintegration, and true suppuration may occur, and fragments of the infected thrombus are carried in the blood stream to distant parts, where as septic emboli they become centres of fresh infection.

In the heart thrombi form upon the inflamed valves, forming the vegetations of endocarditis. Thrombi are also found in the cavities of the heart, especially in the auricular appendices, sometimes attached and sometimes free, in the latter case giving origin to the so-called ball thrombi. Cardiac thrombosis, however, falls under the care of the physician, and I shall not further allude to it.

Arterial thrombosis.—This is met with in connexion with wounds, injuries, and degenerations of the arterial walls. It may occur gradually, as in aneurysms, or suddenly as a result of embolism or other mechanical obstruction to the

[18] Dr. H. D. Rolleston has recorded an instance of numerous small phleboliths under the skin of both shins of a woman aged 50 years. The phleboliths formed discrete, hard, painless, moveable nodules of the size of minute shot or less, they were not attached to the bone or to the skin, and they somewhat resembled the subcutaneous nodules seen in connexion with the acute rheumatism of childhood. See THE LANCET, Jan. 6th, 1906, p. 29.

blood current. It is also caused by chronic or acute arteritis, such as is seen in the course of syphilis and other infective diseases, and is occasionally met with in cases of anæmia and wasting diseases in which no changes in the arterial walls can be detected. In wounds and injuries of arteries the resulting thrombus is the result partly of mechanical obstruction to the blood stream owing to the projection into the lumen of the inner coat and partly of the interference with the normal influence of the intima. The same may be said of the application of a ligature. In the case also of atheromatous and other degenerations of the arterial coats and in aneurysms the destruction of the intima and the roughening of the inner surface of the vessel are largely concerned in the deposition of mural clot, but some retardation or irregularity in the blood current seems to be also necessary. In obliterating arteritis the obstruction of the vessel, though partly due to the arterial sclerosis, is also (as has been shown by Zoege-Manteuffel[19]) largely produced by the deposition and organisation of blood clot. (Fig. 3.) No doubt this condition is frequently due to syphilis, but it also occurs in the course of other infective diseases, as the specific fevers, rheumatism, influenza, and pneumonia. Rare instances are also recorded of arterial thrombosis in connexion with phthisis and Dr. Welch[20] describes a specimen showing a tuberculous focus in the intima of the aorta on which a thrombus has formed containing tubercle bacilli.

Besides these changes in the arterial walls, certain conditions of the blood, in combination with a slow and feeble circulation, will lead to coagulation in the arteries, as is seen in chlorosis, anæmia, and towards the end of exhausting diseases, but this is much less common than in the veins. Such a condition is illustrated by a specimen from the museum of St. George's Hospital (Series VI., 61 D) taken from the body of a woman, aged 37 years, who died from gangrene of the lower limbs. The specimen shows part of the aorta and the iliac arteries filled with old coagula adherent to the internal coat of the artery, but the coats of the vessels are not thickened (Fig. 2). The general tendency to thrombosis is shown by the fact that similar coagula were found in the main arterial trunks and in the

FIG. 3.

Obliterating arteritis. Posterior tibial artery. Coats slightly thickened but artery obstructed by clot.

veins of both lower limbs, in the iliac veins and lower part of the vena cava, in the arteries and veins of the left kidney, and in the left ventricle and right auricle of the heart. A specimen from a similar case is shown in Fig. 4.

Thrombosis of arteries has been observed in connexion with various acute diseases, especially influenza, enteric fever, typhus fever, and pneumonia. Here, again, it is much less common than in the veins and is found chiefly in the arteries of the lower extremities. Cases have also been recorded by Dr. Dickinson[21] of death from rapid thrombosis of cerebral arteries in which there were no disease of the vessels and no acute illness. Mr. Jonathan Hutchinson[22] has also recorded instances of the sudden occlusion of the femoral and other large arteries by thrombosis in which he could discover no evidence of disease of the vessels.

In septic conditions it has been observed that the blood platelets are abnormally numerous and a primary arterial thrombosis may occur to which the infection of the vascular wall is secondary.

Arterial thrombosis occurs most frequently in the lower limbs but does not exhibit the preference shown by the veins

FIG. 4.

Section of femoral artery from a female, aged 23 years, who died from extensive pulmonary artery thrombosis. The femoral artery full of clot; coats natural.

for the left side. The symptoms are chiefly those due to obstruction of the vessel and will depend very much upon whether this takes place rapidly or slowly and also upon the position and importance of the artery concerned. When the artery is rapidly blocked the symptoms resemble those of embolism, from which it is often impossible to distinguish them. When the thrombus is of gradual formation there may be sufficient opportunity for the development of a collateral circulation to prevent any serious results, though this will, of course, depend upon the condition of the arteries generally and their capacity to respond to the call upon their development. The gradual obliteration of an artery may only be recognisable by the increasing hardness and thickness of the vessel, its want of elasticity and the feebleness of its pulsation. There are often, however, some pain and tenderness felt in the course of the artery. When more rapid arterial thrombosis occurs there is usually acute pain and the artery is tender to pressure, the nutrition of the limb is seriously imperilled, and, as in embolism, unless a collateral circulation is soon established gangrene results. The danger of gangrene is less in the upper than in the lower extremities, but is greatly increased if the veins are also thrombosed, as in the case quoted.

Rapid obstruction of visceral and cerebral arteries is most often of embolic origin, although it may sometimes be due to thrombosis.[23] Mr. W. H. Brown has recorded a case of thrombosis of the abdominal aorta, iliac and femoral arteries, in which gangrene of the intestine occurred probably, I suppose, from thrombosis of the mesenteric artery.[24] Obstruction of the coronary arteries is commonly due to a combination of arterial degeneration and thrombosis, the sudden development of symptoms (as, e.g., angina pectoris) depending upon the rapid completion of obstruction by thrombus of a vessel already narrowed by thickening of its coats.

[19] Deutsche Zeitschrift für Chirurgie, 1898, vol. xlvii., p. 461.
[20] Allbutt's System of Medicine, vol. vi., p. 196.
[21] St. George's Hospital Reports, vol. i., 1866, p. 257.
[22] Archives of Surgery, vol. vii., p. 29, and vol. ix., p. 100.
[23] See Dr. Dickinson's cases, St. George's Hospital Reports, vol. i., p. 257.
[24] Transactions of the Clinical Society of London, vol. xxvi., p. 1.

Thrombosis of the pulmonary arteries will be considered in connexion with venous thrombosis and pulmonary embolism.

Senile gangrene is usually caused by thrombosis of the small terminal arteries, the first symptom of which is often acute pain. Doubtless arterio-sclerosis and feeble circulation play an important part in its production and the mischief is often started by some slight injury or inflammation, but the thrombosis is the immediate cause. It is important to recognise this, because if the condition is seen and appreciated at its commencement the danger may be averted by appropriate treatment. The reason why thrombosis is not more common in connexion with arterio-sclerosis is that the heart is usually hypertrophied so that the arterial resistance is overcome by the increased heart power.

Venous thrombosis.—The conditions under which coagulation of the blood occurs in the living veins are very similar to those which lead to the formation of coagula in the arteries, but venous thrombosis is more common than arterial. It has already been pointed out that any impairment of the nutrition of the endothelium of the blood-vessels leads to the formation of thrombi upon the vessel wall, and such an impairment of nutrition occurs whenever the rapidity of the circulation is materially diminished for any length of time. "This," as pointed out by Dr. W. S. Lazarus-Barlow,[28] "depends upon the fact that the intima, including the endothelial cells, unlike the rest of the vessel wall, derives its nutriment from the blood in the lumen of the vessel and not from that conveyed by vasa vasorum. In most cases a diminution in velocity of blood flow is the proximate cause of the thrombosis."

In wounds, injuries, and ligature of veins coagulation of the blood occurs, partly as a consequence of the mechanical disturbance of the blood flow and partly from the interference with the integrity of the endothelium. It occurs more readily than in wounds of arteries because of the slower and less forcible blood stream and perhaps also because of the greater coagulability of the venous blood.[29]

Degeneration of the venous walls, dilatations and varices and anything producing obstruction or retardation of the blood current, are causes of thrombosis by disturbing the normal relations between the blood and the venous endothelium. Inflammation of veins is a common cause of thrombosis and owing to the thinness of the venous coats any surrounding inflammation invading the outer tunic of the vein is easily conveyed to the endothelium. This is one reason for the greater frequency of venous as compared with arterial thrombosis. The presence of micro-organisms either in the blood or the venous wall will give rise to thrombosis, as is frequently seen in septic inflammations. Venous thrombosis also frequently occurs in consequence of changes in the blood and in connexion with various acute and chronic diseases and in conditions of great debility.

When coagulation occurs in a living vein it is often difficult to say whether the thrombus is the cause or the result of phlebitis. If a vein is obstructed by a thrombus the nutrition of the endothelium at once suffers and if the clot contain micro-organisms they will soon invade the intima, the resistance of which will be already lowered and an endophlebitis will ensue. But, on the other hand, there are numerous cases in which it is certain that the changes in the vein precede the thrombosis; for instance, in the chronic inflammation which occurs in connexion with varix, in syphilitic endophlebitis, in tuberculous invasion of the vein, and in other degenerative changes. So also in septic inflammation spreading to the outer coat of a vein from a neighbouring focus invasion takes place from without inwards and thrombosis does not occur till the intima is reached.

The most serious of these conditions are those of septic origin. Here the presence of micro-organisms gives rise to coagulation and the clot has an infective character which it communicates to any part to which it is carried. The process may begin in inflammation of the outer coat of a vein originating in a septic or suppurating wound, or in an infective focus as in middle ear disease or acute necrosis of bone; this spreading to the inner coats leads to endophlebitis and consequent thrombosis. Or the organisms may invade the intima from the circulating blood or from an infected thrombus brought from a distant part. In these septic cases, whichever the mode of origin, the coats of the vein are always found much thickened. (Fig. 5.)

Phlegmasia dolens is an example of septic phlebitis extending from the uterine veins through the iliac to the femoral and other veins. Thrombosis beginning in the uterine veins may extend from the uterus to the iliac and

FIG. 5.

Femoral vein. Infective phlebitis. Showing great thickening of coats of vein and disintegrating clot.

femoral veins and even to the vena cava. Sometimes, however, the phlebitis would appear to be the result of the transmission of infecting organisms by the blood and not of direct extension from the uterus. There is an admirable paper on phlegmasia dolens by Dr. David D. Davis in the Transactions of the Royal Medical and Chirurgical Society for 1823,[27] in which the author describes several cases of the affection and proves by dissection that its proximate cause is an inflammation and obstruction of "one or more of the principal veins within and in the immediate neighbourhood of the pelvis." But he did not trace the disease of the veins to its source in the uterus, though he recognised its connexion with parturition and with disease of the pelvic organs.[28] The paper is illustrated by beautiful coloured drawings showing the condition of the iliac veins and the contained clot.

You will remember also the notable papers by Dr. Robert Lee[29] on this subject communicated to the Royal Medical and Chirurgical Society in 1829 and 1853, in which he clearly demonstrated the pathology of the disease and showed that it occurred also in the male sex, and that in all cases the proximate cause is the same—namely, inflammation of the iliac and femoral veins. And in the volume of the Transactions of the Royal Medical and Chirurgical Society for 1853 is an elaborate paper by Dr. F. W. Mackenzie[30] on the Pathology of Obstructive Phlebitis, recording numerous experiments upon animals and an analysis of 100 cases of phlegmasia dolens in the human subject, from which he concludes that the obstruction and inflammation of the iliac and crural veins, which are the essential features of the disease, depend upon the presence of abnormal material in the blood.

Here, it will be observed, was a very close approach to the recognition of a microbic origin for the disease and it may be noticed that the important and accurate advance in the knowledge of the causation of phlegmasia dolens made by the three authors to whose work I have drawn attention was the result of laborious pathological investigation, of experiments upon animals, and of careful clinical observation, a striking contrast to the wild and unfounded theories which had previously prevailed.

Pylephlebitis is an example of suppurative inflammation and thrombosis of the portal vein originating in an infective

[28] A Manual of General and Experimental Pathology, 1904, p. 117.
[29] Wooldridge has shown that the plasma of peptonised blood which does not coagulate on the addition of fibrin ferment coagulates freely if in addition a stream of carbonic acid is passed through it.

[27] Transactions of the Royal Medical and Chirurgical Society, vol. xii., p. 419.
[28] Ibid., p. 445.
[29] Ibid., vol. xv., pp. 132, 369, and 281; and vol. xxxvi., p. 281.
[30] Ibid., vol. xxxvi., p. 170.

focus in some part of the area belonging to the branches of the vein. The most common origin is suppuration in connexion with the vermiform appendix, a point to be borne in mind in relation both to the diagnosis and treatment. The symptoms are often obscure but are chiefly suggestive of pyæmia. Rigors, fever of the remittent type, sweating, jaundice, and enlargement and tenderness of the liver would make the diagnosis probable, especially if there were evidence of intestinal disease, for which a careful search should be made.

In the light of recent investigations it seems probable that many of the so-called idiopathic or spontaneous thromboses are of microbic origin but there are some in which no micro-organisms can be found in the thrombi; while, on the other hand, bacterial invasion of the wall of a vein may occur without the formation of a thrombus.

Septic phlebitis is a condition attended by serious symptoms and grave danger. The severity of the symptoms will depend upon the virulence of the infection, the susceptibility of the individual, and the position of the mischief.

In the acute form of suppurative phlebitis the wall of the vein is invaded by pyogenic organisms, coagulation occurs in the inflamed vein, and the thrombus is itself infected and by its softening carries infection into the blood stream, giving rise to septicæmia and pyæmia. In this connexion I would remind you of the admirable paper communicated by Mr. Arnott to the Royal Medical and Chirurgical Society in 1828, in which he showed the relation between the primary and secondary affections in phlebitis.[21] If a superficial vein is affected it is observed to be swollen and tender and the skin over it shows a red line. These conditions tend to spread rapidly along the vein in the direction of the blood stream. If a deep vein is attacked pain is felt in the part, soon followed by swelling, tenderness, and suppuration. The constitutional symptoms are severe; the temperature and pulse rise rapidly, rigors supervene followed by profuse sweating, the tongue is dry, appetite is lost, and there may be delirium. To these symptoms are soon added those of general pyæmia—rapid oscillations of temperature, rigors, sweating, and disseminated suppurations. Such cases usually end fatally, partly by the general poisoning of the blood and the consequent fever and exhaustion, and partly by the occurrence in important organs, especially the lungs, of centres of inflammation and suppuration. Chaucer described the condition very accurately in the Knighte's Tale:—

> "The clothred blood, for eny leche-craft,
> Corrumpith, and is in his bouk i-laft,
> That nother veyne blood, ne ventusyng,
> Ne drink of herbes may ben his helpyng.
> The vertu expulsif, or animal,
> Fro thilke vertu cleped natural,
> Ne may the venym voyde, ne expelle.
> The pypes of his lounges gan to swelle,
> And every lacerte in his brest adoun
> Is shent with venym and corrupcion.
> Him gayneth nother, for to get his lyf,
> Vomyt up-ward, ne doun-ward laxatif;
> Al is to-broken thilke regioun;
> Nature hath now no dominacioun.
> And certeynly wher natur will not wirche,
> Farwel phisik; go bere the man to chirche."

When the infection is less virulent the symptoms are correspondingly less severe and many gradations are met with down to cases in which, though there is a well-marked phlebitis, the symptoms of infection are but slight. I have no doubt that some of the cases of so-called idiopathic phlebitis are of this nature. The infection may be of a low degree of virulence and the subject may have a high resisting power or immunity. Moreover, the infected thrombus may be isolated from the general circulation and so produce only local effects. In other cases the phlebitis may become manifest, while the source of the infection may be obscure. For instance, I have seen a case in which a slowly-forming ischio rectal abscess, accompanied by so little pain that the patient disregarded it, gave rise to a septic phlebitis accompanied by rigors, fever, and sweating, as well as by local symptoms.

In some cases of chronic pyæmia in which large superficial collections of pus occur indubitable evidence of thrombosis may be observed, and on opening the abscesses the pus is seen to be mixed with broken-down clot. In all cases of phlebitis it is therefore well to seek for a source of infection, for in many instances in which the disease begins with but slight constitutional disturbance symptoms of severe infection subsequently develop. These symptoms probably arise coincidently with the disintegration of the infected thrombus and the entrance into the blood stream of septic organisms. The successful treatment of such cases will of course depend very largely upon the removal of the focus of infection. Notable examples of this are the cases of chronic suppuration of the middle ear giving rise to endophlebitis and purulent thrombosis of the lateral sinus, in which life may be saved by ligature of the internal jugular vein and the thorough removal from the sinus of the infected clot. In other cases of phlebitis the focus of infection may be found in a deeply seated abscess, a suppurating wound, or an osteomyelitis, and the first essential in the treatment is the removal or disinfection of such focus. Abscesses must be freely opened and thoroughly cleansed and drained; suppurating or foul wounds must be disinfected; and bones the subject of osteomyelitis must be removed by resection or amputation. An accessible vein suspected to contain a septic clot should be ligatured above and below the thrombus and the portion between the ligatures excised.

Beyond these local measures the treatment must be adapted to the general condition of the patient. In the severe and advanced cases it will be that of pyæmia—quinine should be given in frequently repeated doses and the strength supported by appropriate food and stimulants. The exclusion of all insanitary conditions should be carefully looked into and the patient should be kept in a well-ventilated and light room and removed as soon as possible into fresh and healthy surroundings. He should not remain—

> "In populous city pent
> Where houses thick and sewers annoy the air,"

but should seek—

> "Airs, vernal airs,
> Breathing the smell of field and grove."

He should go where he can—

> "Look into the fair
> And open face of heaven,"

for pure air and sunshine are valuable aids to recovery and the high moorlands are often more beneficial than the sea coast.

LECTURE II.

Delivered on March 7th.

MR. PRESIDENT AND GENTLEMEN,—Leaving now the cases of undoubted septic origin we come to the consideration of a class in which the phlebitis is of quite different character and of which the dangers are of a quite different kind. Many of these undoubtedly depend upon changes in the blood which favour the occurrence of thrombosis, to which the phlebitis is secondary. It seems possible that in some of the diseases with which venous thrombosis is associated toxic or other chemical changes in the blood may affect the nutrition of the leucocytes and red corpuscles or favour the production and increase of the blood plates and thus, aided by an enfeebled circulation, lead to the formation of a thrombus.

Professor Osler[22] has observed that in acute fevers the blood plates do not become more numerous in the early stage of the disease but increase in number as the patient becomes weaker and more debilitated. In typhoid fever, for instance, there is no increase during the first week but a notable increase in the third and fourth weeks. It will be observed that the increase in the number of the blood plates occurs just in that stage of disease which is especially liable to thrombosis. Dr. J. H. Pratt[23] of Boston has reported a series of observations on the relative number of the platelets in various diseases. There was a marked increase in chlorosis; the greatest diminution was observed in a case of purpura hæmorrhagica. In other cases in which the slowness or feebleness of the circulation would seem to be the chief factor it is difficult to say how far the diminished nutrition of the vessel wall is the immediate cause of coagulation and how much is due to the invasion of micro-organisms.[24]

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[21] Transactions of the Royal Medical and Chirurgical Society, vol. xv., p. 1.

[22] Cartwright Lectures on the Physiology of the Blood Corpuscles, Medical News, 1886, p. 366.

[23] Johns Hopkins Hospital Bulletin, May, 1905, p. 201.

[24] Mr. W. C. C. Pakes has recorded the case of an anæmic and phthisical girl, 13 years of age, who was admitted to Guy's Hospital with thrombosis of the left iliac vein and swelling of the left lower limb. A week before death the right leg became swollen owing to thrombosis of the right iliac vein. Post mortem there were thrombi in both iliac

Thrombosis is a common occurrence in varicose veins and is usually the result of injury but in gouty persons the subject of varix it is often seen in association with eczema when no injury can be traced. Coagulation is especially prone to occur in the cyst-like dilations and tortuous veins so frequently met with in the lower part of the thigh and the neighbourhood of the knee. Such varices are very liable to become inflamed because of their prominence on a part of the limb often exposed to injury and because in this situation they are particularly subject to irritation from pressure and friction, as in riding and other exercises. In varicocele also thrombosis is not infrequently caused by injury and in some cases the resulting obliteration of the vein produces a complete cure of the varicocele. In gouty persons it is more often the smaller nævus-like patches of varicose veins in the lower part of the leg or the muscular branches of the calf which are affected. Considering the frequency with which thrombosis occurs in varicose veins it is remarkable that it is comparatively seldom attended with serious symptoms. There is usually but little constitutional disturbance and the local discomfort is often but slight; the chief danger is of displacement of the clot and consequent embolism. This serious event is fortunately not of very common occurrence but it is a danger which ought always to be borne in mind in the treatment of such cases, particularly in those in which the blocked vein is near a joint or in direct communication with the main trunk, as, for instance, in the neighbourhood of the knee or of the saphenous opening.

Gouty phlebitis.—Since the publication in 1866 of Sir James Paget's well-known lecture gouty phlebitis has been a well-recognised disease. There can be no doubt that persons of gouty habit or ancestry are more than commonly liable to phlebitis and that in them the affection has usually certain distinguishing characters. To quote Sir James Paget's description: "Gouty phlebitis is far more frequent in the lower limbs than in any other part; but it is not limited to the limb that is, or has been, the seat of ordinary gout. It affects the superficial rather than the deep veins, and often occurs in patches, affecting (for example) on one day a short piece of a saphenous vein, and on the next day another piece of the same, or a corresponding piece of the opposite vein, or of a femoral vein. It shows herein an evident disposition towards being metastatic and symmetrical; characters which, I may remark by the way, are strongly in favour of the belief that the essential and primary disease is not a coagulation of the blood but an inflammation of portions of the venous walls."[33] Sometimes it begins in the deep veins of the calf, the first symptom of which may be a sudden and acute cramp-like pain which is soon followed by deeply seated tenderness to pressure. There is a tendency to frequent recurrences of the attacks which are especially prone to occur when the patient is fatigued or below the usual standard of health. It is sometimes the only manifestation of gouty inheritance but is frequently combined with other obviously gouty symptoms. It is not usually attended with much constitutional disturbance.

An example of troublesome and frequently recurring phlebitis occurred in a patient from whom I had on two occasions removed uric acid calculi by lithotrity. He lived most abstemiously and on a most carefully regulated diet but nevertheless had frequent attacks of phlebitis alternating with eczema, cystitis, and other symptoms of the uric acid diathesis. It seems to me, however, that it is the fashion at the present time to attribute many cases of phlebitis, as of other diseases, to gout or the uric-acid diathesis when there is no evidence whatever of either the presence or the inheritance of gout.

Phlebitis is sometimes seen in association with, or during the convalescence from, acute rheumatism, but I do not think that this is sufficiently common to justify the inference that there is any special connexion between the two diseases.

Thrombosis is frequently met with during convalescence from *enteric fever* and is not uncommon in other conditions of exhaustion, such as result from prolonged or serious illness and in the late stages of phthisis. It occurs occasionally, but not often, in the acute stage of enteric fever.

Professor Wright and Dr. H. H. G. Knapp[36] have proved that the coagulability of the blood is diminished in the acute stage but increased in the convalescent stage of typhoid fever, the coagulation time being four and a half minutes in the convalescent stage, as compared with 20 minutes during the pyrexia. They show, moreover, that the blood of these convalescents is not only much more coagulable than the normal but it contains twice the normal amount of lime salts; whereas if the lime salts were brought within the normal limits the coagulability was reduced to even less than that of normal blood. The writers suggest that the increased coagulability of the blood of typhoid convalescents may be dependent upon an excess of lime salts and that this excess is derived from the milk, upon which typhoid patients are chiefly fed. Cow's milk, it is noted, contains 1 part in 600 of lime, as compared with 1 part in 800 contained in lime-water. The remedy indicated is the administration of citric acid as a decalcifying agent; and in seven patients, in all of whom the blood was found to be abnormally coagulable, it was observed that the administration of citric acid (36 grains three times a day) was followed by a decalcification of the blood and a corresponding diminution of its coagulability. It is suggested that, with a view to restrict the intake of lime salts the milk given might be partially decalcified and thus rendered more easily digestible and less constipating. This can be effected by adding to each pint of milk from 20 to 40 grains of citrate of soda. These valuable suggestions appear to me to be applicable to many other conditions besides typhoid fever.

Dr. W. W. Keen of Philadelphia,[37] in his work on "The Surgical Complications and Sequels of Typhoid Fever," collected 128 cases of venous thrombosis following fever. Of these "only four involved the upper extremity alone, two involved both the arm and leg, all the other 122 cases were limited to the lower extremities." He observes that, whereas arterial thrombosis occurs with almost equal frequency on the two sides of the body, two-thirds of the cases of venous thrombosis were on the left side and that both forms of thrombi, arterial and venous, "form most frequently during, or just after, the period of greatest cardiac weakness, a weakness felt most at such distant points as the legs." Of 148 cases, 58 occurred in the second and third weeks. The influence of the enfeebled circulation is also shown in the location of the thrombus. "The coagulation takes place at points mechanically favourable to slowing of the current—e.g., the bifurcation of arteries and the valves of the veins."[38] Dr. Keen also gives reasons for thinking that some at least of the cases of necrosis of bone following typhoid fever may be due to thrombosis of the arteries or veins.[39]

Dr. Murchison recorded[40] a remarkable case in which during the course of a severe attack of *typhus ferer* gangrene of both legs occurred in consequence of thrombosis of the iliac and femoral arteries and of the femoral and popliteal veins of the left limb. The patient, a woman, 45 years of age, died on the forty-first day of illness. Dr. Murchison points out that although there was gangrene of both legs there was swelling only of the left leg, in which the vein, as well as the artery, was obstructed. He also remarks that in the venous thrombosis occurring in connexion with fever it is almost invariably the left lower limb which is affected.

Chlorosis.—This is a disease in which it is well known that there is an especial liability to thrombosis. This depends, no doubt, upon the condition of the blood, in which there is a great diminution both in the number of red corpuscles and also of their contained hæmoglobin. The relatively greater number of white corpuscles in chlorosis and their slow movement along the walls of the blood-vessels are conditions

and femoral veins and in the thrombus of the left femoral vein, which was carefully excised and examined, was found the bacillus proteus vulgaris. Mr. Pakes remarks that "in health the bactericidal power of the blood is probably sufficiently great to destroy this organism if it should gain access to it, but when from any cause this action is diminished the organism becomes relatively pathogenic. The bactericidal power may be reduced in many ways, of which a wasting disease and a dose of ptomaines are two." (Transactions of the Pathological Society of London, vol. li., p. 47.) Dr. F. C. Turner has published a case of thrombosis of the iliac vein in a man, aged 36 years, who died from Hodgkin's disease, a condition in which there are important changes in the leucocytes, possibly due to micro-organisms. (Transactions of the Pathological Society of London, vol. xxix., p. 344.)

[33] Clinical Lectures and Essays, p. 293 (1875). See also Sir Prescott Hewett in presidential address to the Clinical Society (Transactions, vol. vi., p. 57) who relates cases of gouty phlebitis and points out that it often begins in the back of the leg, midway between the heel and the fiam.

[36] On the Causation and Treatment of Thrombosis occurring in connexion with Typhoid Fever. Transactions of the Royal Medical and Chirurgical Society, vol. lxxxvi., p. 1, 1903.

[37] The Surgical Complications and Sequels of Typhoid Fever. London, 1898, p. 741.

[38] Op. cit., p. 363.

[39] Op. cit., p. 111.

[40] Transactions of the Pathological Society of London, vol. xvi., p. 93.

favourable to the occurrence of thrombosis, as also is the increase in the number of platelets which has been observed. It would seem also that the chemical composition of the blood is altered, the potassium being diminished and the sodium and chlorine increased.[41]

Dr. Lee Dickinson[42] pointed out that "the intra-vascular coagulation brought about by the injection of foreign substances (snake venom and nucleo-proteid) into the circulation of animals takes place by preference in the venous system and is greatly favoured by excess of carbonic acid in the blood. Chlorotic blood, by reason of its poverty in hæmoglobin, is certainly deficient in oxygen and probably equally overloaded with carbonic acid. The comparative infrequency of thrombosis in the cerebral sinuses, where the mechanical conditions seem so favourable, is perhaps explained by the observation of Dr. Leonard Hill that the blood obtained from the torcular Herophili contained far less carbonic acid than that from the femoral vein."

Professor Wright[43] has shown that an increase of the carbonic acid in the blood much increases its coagulability and he relates a case of hæmophilia in which hæmorrhage was arrested by the inhalation of carbonic acid gas. Chlorotic thrombosis is apt to be extensive and recurrent; when its seat is the cerebral sinuses it is a condition of extreme gravity; when affecting the extremities its chief danger is pulmonary embolism.

Thrombosis may occur in the condition of debility sequential to *influenza* as to other febrile diseases, but it is also not uncommon during the acute stage of the attack, when it is possibly due to the influenzal bacillus. It is also sometimes associated with *pneumonia*. It has been observed that inflammatory exudations which are associated with the presence of the pneumococcus show a marked tendency to coagulate.[44]

Peripheral thrombosis is a well-recognised complication of *appendicitis*. Notes of 1000 cases of operation for appendicitis at the London Hospital were furnished by Mr. Hugh Lett at the discussion at the Royal Medical and Chirurgical Society in February, 1905. Among these 1000 cases there were 12 of thrombosis of the veins of the lower extremities and one case of pulmonary embolism. Of 442 cases of operation for appendicitis at St. George's Hospital of which notes were furnished by Mr. Lawrence Jones for the same discussion nine had thrombosis of the lower limbs and three had pulmonary embolism. Of 863 cases reported by Dr. H. P. Hawkins of St. Thomas's Hospital there were two cases of thrombosis of the veins of the leg and two cases of pulmonary embolism. Mr. Aslett Baldwin reported 234 cases from the Middlesex Hospital with one case of pulmonary embolism and thrombosis of iliac veins. Mr. C. B. Lockwood of St. Bartholomew's Hospital contributed 200 cases with two cases of thrombosis of mesenteric veins and one case of thrombosis of the iliac vein. Mr. G. E. Gask reported 795 cases with five cases of venous thrombosis.

TABLE I.—*Cases of Operation for Appendicitis showing number of Cases of Thrombosis and of Pulmonary Embolism.*

—	Number of cases.	Thrombosis.	Pulmonary embolism.
London Hospital	1000	12	1
St. George's Hospital	442	9	3
St. Thomas's Hospital	863	2	2
Middlesex Hospital	234	1	1
St. Bartholomew's Hospital ...	795	5	—
Total	3334	29	7

Thrombosis is also met with in connexion with operations for gastric ulcer and other abdominal diseases. Of 50 cases of operation at St. George's Hospital for perforated gastric and duodenal ulcer recorded by Mr. T. Crisp English there were three cases of thrombosis, all of the veins of the left lower extremity.[45] Dr. A. H. Corder of Kansas has collected 232 cases of phlebitis following abdominal and pelvic operations. In 213 cases the left saphenous or femoral vein was affected. Dr. Corder asserts that phlebitis occurs in about 2 per cent. of all abdominal operations and is especially frequent after operations on patients anæmic from hæmorrhage, as, e.g., abdominal hysterectomies for bleeding fibroids.[46]

There still remain a certain number of cases of thrombosis and phlebitis in which no association with any precedent disease or injury can be traced but which occur in apparently healthy individuals. This is the class usually spoken of as "idiopathic." In the light of recent researches and increasing facilities for the detection of micro-organisms it seems probable that some of these are really of infective origin, although the source of infection has not always been discovered. But there are others in which neither chemical nor pathological evidence of infection can be obtained and of which it must be admitted that the origin is obscure. Sir James Paget related two such cases.[47] In both of these the upper extremity was affected and the patients were healthy men. In the first case four inches of the axillary vein could be felt blocked. The arm was swollen and there were enlarged superficial veins over the upper part of the chest. Sir James Paget says: "No cause whatever could be traced for this condition; no injury or pressure; no known inheritance of disease; no disturbance of the general health, past or present." With the help of the hot douche, warmth, and friction recovery took place in the course of a year. In the second case the arm was in a similar condition and no cause for it could be discovered. "It was uncertain how long this state of the arm had existed; it had been observed only a week; its [rate of increase was unknown." The patient remained in the same condition for a month and was then treated by leeching and mercury, after a fortnight of which he had an attack of scarlet fever, and while this was running its course all signs of the affection of the arm disappeared.[48] I will add another case.

A healthy man, 54 years of age, living a temperate and healthy but busy life, was suddenly seized with acute, cramp-like pain in the left calf. This was on the evening of a somewhat fatiguing day but no unusual exercise or exertion had been undertaken. The pain subsided after a few hours' rest but next day recurred, when walking and standing were somewhat painful. A careful examination revealed some deep-seated tenderness in the calf but no swelling. The patient showed no sign of illness, the temperature and pulse were natural, and the urine was clear and of normal acidity. He was not anæmic, he had never had any signs of gout, nor was he of gouty ancestry; he was not aware of having received any injury. Complete rest was prescribed, the patient was confined to bed, and the limb was covered with a layer of wool and lightly bandaged to a splint. Nevertheless the phlebitis spread upwards to the femoral vein with severe pain and moderate constitutional disturbance. Subsequently the right femoral vein was attacked and in the second week symptoms of pulmonary embolism occurred. The patient, after a tedious illness, gradually recovered. I have seen other analogous cases and I must admit that I cannot explain them.

A paper was published in 1905 on this class of cases by Dr. John Bradford Briggs of Washington.[49] He describes a variety of phlebitis affecting the veins of the extremities and occurring in the absence of all conditions that are commonly recognised as predisposing to inflammation of the veins. The condition occurs suddenly in persons apparently in perfectly good health and, without fever or other disturbance, leads to obliteration of the affected vein. It is apt to recur and to spread from the point at which the vein has previously become obstructed. Dr. Briggs quotes cases in which the saphena, the femoral, and the axillary veins were respectively the seat of the disease. He admits that the cases are "obscure alike in their pathology and in their remote and immediate etiology," but thinks that the affection is due to sclerosis of the veins and is concerned with the wall rather than with the contents of the vessel.

It will be observed that thrombosis occurring in connexion with fever, chlorosis, phthisis, and other debilitating diseases, after operations, and indeed whatever its cause, shows a

[41] Biernacki: Wiener Medicinische Wochenschrift, 1893.
[42] Transactions of the Clinical Society of London, vol. xxix., p. 63.
[43] Proceedings of the Royal Society, vol. lv., p. 231, and On Methods of Increasing and Diminishing the Coagulability of the Blood, Brit. Med. Jour., July 14th, 1894, p. 57.
[44] Lazarus-Barlow: Manual of Pathology, p. 197.
[45] Transactions of the Royal Medical and Chirurgical Society, vol. lxxxvii., p. 27.
[46] Journal of the American Medical Association, Dec. 9th, 1905, p. 1792.
[47] Clinical Lectures and Essays, p. 305.
[48] Ibid., p. 307.
[49] On Recurring Phlebitis of Obscure Origin, Johns Hopkins Hospital Bulletin, June, 1905, p. 228.

curious preference for the left lower limb. The only reason for this preference which, so far as I know, has been suggested is the position of the left common iliac vein, the current in which may possibly be somewhat obstructed by the pressure of the right common iliac artery under which the vein passes. On looking carefully at the anatomy of the vessel I noticed that not only was the vein crossed by the right common iliac artery but also by the left internal iliac artery as it passes downwards to the sacro-sciatic foramen, both of the arteries crossing the vein almost at a right angle and in marked contrast to the relations on the other side. This may not seem a very strong reason for the great predominance of thrombosis in the left vein; yet if the blood is in a condition in which a slight retardation of the current would be sufficient to turn the balance towards coagulation this anatomical difference may be enough to determine the thrombus to the left side. It is possible also that the pressure of a loaded rectum may have some influence upon the venous circulation of the left side of the pelvis.

Thrombosis may, however, occur in the upper limb. I have related two cases of Sir James Paget. Sir Prescott Hewett[50] recorded a case in which after small-pox both axillary veins as well as both external iliac veins became permanently blocked. The patient, "an officer in a heavy cavalry regiment, was nevertheless able to remain in the service and efficiently to discharge his duties, for a vast collateral circulation had been developed and there was a mass of large tortuous veins spreading over the belly and chest."

I have seen thrombosis of the veins of the upper arm occurring in and associated with simple debility. Dr. F. C. Turner[51] has recorded a case of thrombosis of the innominate, internal jugular, and subclavian veins occurring in an anæmic man, aged 44 years, who had suffered from severe hæmorrhage from a malignant ulcer of the stomach. There were much swelling of the arm, shoulder, and neck, and enlargement of the surface veins over the chest and upper arm. Dr. Wilberforce Smith has described[52] an instance of a thrombus organised and adherent in the innominate and subclavian veins in a case of pulmonary phthisis. There was a cavity in the apex of the lung over which the pleura was thickened and the adjacent part of the subclavian vein was thickened and narrowed. Four weeks before death œdema and lividity of the arm appeared.

Besides these examples of thrombosis occurring in conditions which are of themselves of grave import, it is easily provoked in persons who are debilitated by over-fatigue, anxiety, starvation, or other depressing influences. Herein, although the debility is the predisposing cause, the immediate cause is most often some severe muscular effort and the thrombus starts in the strained or over-used muscle. Such is the origin of most of the cases of non-infective thrombosis of the upper limbs, a condition not very often met with.

Pulmonary embolism.—Pulmonary embolism may occur in any case of phlebitis or thrombosis in the course of slight as well as of severe attacks. The second and third weeks are the period most liable to this danger, which is not often me with after the sixth week. Nevertheless, fatal embolism may be produced by violence, such as a blow or severe pressure applied to a blocked vein, at much later periods. Dr. W. S. Playfair in a paper in the Transactions of the Pathological Society[53] collected 25 cases of thrombosis and embolism of the pulmonary artery occurring in women after delivery and pointed out that thrombosis occurs before the fourteenth day—often on the second or third day (15 cases); but that embolism does not occur until after the nineteenth day (7 cases).

The detachment of a large venous thrombus and its lodgment in the main trunk or in one of the chief divisions of the pulmonary artery may cause almost immediate death. This detachment of clot usually ensues upon some movement of the limb or of the body, some sudden change of posture, or some pressure upon a blocked vein. Thus sitting up in bed, which involves flexion at the groin, stooping, kneeling, or the movements concerned in leaving or returning to bed have often been the immediate cause of this disaster. Sudden and intense dyspnœa occurs with great pain in the chest, cyanosis, and feeble irregular pulse, followed directly or in a few minutes by death. When smaller branches of the pulmonary artery are blocked the symptoms are less severe and either gradually increase and lead to a fatal end or may diminish and be followed by recovery. In other cases a localised pneumonia with hæmorrhagic expectoration may ensue. I have known this sequence of symptoms to recur several times with eventual recovery; but the condition is, of course, one of grave danger, demanding the most absolute quiet on the part of the patient.

Pulmonary thrombosis.—Obstruction of the pulmonary artery may also occur from thrombosis. It is probable that in some of the cases recorded as instances of pulmonary embolism the obstructing plug may have been formed *in situ* and have been really due to thrombosis. Dr. G. Newton Pitt[54] has collected 40 cases of thrombosis of the pulmonary artery out of 3218 necropsies at Guy's Hospital and gives reasons for thinking that the condition is of much more frequent occurrence than is usually supposed. In many cases the clot forms gradually and is situated in the smaller branches so that there are no sufficiently characteristic symptoms to enable a diagnosis to be made during life.[55] Sometimes, however, a thrombus may form in a large branch, giving rise to symptoms similar to those of embolism—severe and distressing dyspnœa, faintness, cyanosis, and great circulatory disturbance. These symptoms may subside and recur at varying intervals with each addition to the clot until at last the complete occlusion of the vessel brings about a fatal result. More rarely thrombosis of the main trunk or its primary divisions is a cause of sudden death.

Pulmonary thrombosis occurs under similar conditions to thrombosis of other arteries and veins, especially in feeble and cachectic states with lowered vitality and weak circulation, and although degeneration of the coats of the vessel is much less common in the pulmonary than in the other large arteries, yet such disease may be the starting point of a thrombus.

I have collected from the post-mortem records of St. George's Hospital for the last ten years, which include 2903 necropsies, the following cases of venous thrombosis. The list (Table II.) shows the relative frequency with which the veins were affected in fatal cases.

TABLE II.—*Fatal Cases of Venous Thrombosis, showing the Veins affected.*

	Cases.		Cases.
Iliac veins	31	Superior mesenteric	3
Inferior vena cava	15	Innominate	2
Lateral sinus	15	Subclavian	2
Femoral	12	Splenic	2
Internal jugular	7	Renal	2
Saphenous	7	Ovarian	2
Hepatic	5	Inferior mesenteric	1
Cerebral cortex	4	Pelvic	1
Portal	3	Uterine	1

The following table (Table III.) shows the diseases in connexion with which the thrombosis occurred.

TABLE III.—*Fatal Venous Thrombosis, giving the Diseases of Origin.*

	Cases.		Cases.
Middle-ear disease	14	Necrosis of femur	1
Cancer (various organs)	12	Ulceration of leg	1
Inflamed varix	6	Impacted tooth plate in œsophagus	1
Appendicitis	4	Gonorrhœa	1
Gastric ulcer	3	Lardaceous disease	1
Ovariotomy	3	Gall-stones	1
Abscess of liver	3	Renal calculus	1
Peritonitis	2	Cirrhosis of liver	1
Puerperal septicæmia	2	Pneumonia	1
Inflammation of uterus	2	Pancreatitis	1
Ulceration of bowel	2	Sclerosis of spinal cord	1
Heart disease	2	Suppuration of hip-joint	1
Pleurisy	2	Fractured leg	1
Cystitis	1	Actinomycosis	1
Stricture and prostatic abscess*	1	Uterine hæmorrhage	1
Pyosalpinx	1	Operation for radical cure of hydrocele	1
Anæmia	1	Empyema	1
Phthisis	1		
Suppurating ovarian cyst	1		

* This was the only case in which gangrene occurred and there was thrombosis of the external iliac and femoral arteries as well as the femoral and profunda veins.

[50] Transactions of the Clinical Society of London, vol. vi., p. 37.

[51] Transactions of the Pathological Society of London, vol. xliii., p. 64.

[52] Ibid., vol. xliii., p. 64.

[53] Ibid., vol. xviii., p. 68, and THE LANCET, 1867, vol. ii., pp. 67, 93, and 153.

[54] Ibid., vol. xliv., p. 48.

[55] Cf. Paget, Transactions of the Royal Medical and Chirurgical Society, vol. xxvii., p. 162, and vol. xxviii., p. 353, who shows "that a large and quickly increasing part of the pulmonary circulation may be arrested without immediate danger to life or any striking indication of what has happened."

Thrombosis of the pulmonary artery occurred in eight cases in connexion with the conditions shown in Table IV.

TABLE IV.—*Thrombosis of the Pulmonary Artery occurred in connexion with—*

—	Sex.	Age.
Cirrhosis of liver	F.	41
Radical cure of hydrocele	M.	47
Pleurisy	M.	18
Carcinoma of stomach	M.	66
Gastric ulcer	M.	49
Appendicitis	M.	58
Tropical abscess of liver, exhaustion	M.	32
Disease of heart	M.	4

Fatal pulmonary embolism occurred in 15 cases in connexion with the conditions shown in Table V.

TABLE V.—*The Conditions in connexion with which Fatal Pulmonary Embolism occurred in 15 Cases.*

—	Sex.	Age.
Thrombosis of varicose saphenous vein	M.	36
" " "	F.	40
Ovariotomy; thrombosis of both internal iliac veins and inferior vena cava	F.	54
Ovariotomy; thrombosis of saphenous vein	F.	41
Removal of cyst of broad ligament; thrombosis of femoral and iliac veins	F.	42
Pyosalpinx; thrombosis of ovarian and iliac veins	F.	29
Appendicitis; operation	F.	21
Gastric ulcer; thrombosis of internal iliac vein	F.	23
Empyema; thrombosis of internal iliac vein	F.	27
Renal calculus; thrombosis of femoral vein	M.	44
Ulceration of rectum; pelvic abscess; thrombosis of renal vein	F.	43
Abscess of liver; thrombosis of hepatic veins	M.	34
Tuberculous peritonitis; thrombosis of iliac veins	M.	51
Thrombosis of uterine veins	F.	53
Fractured leg; thrombosis of veins of leg	M.	31

TABLE VI.—*The Veins in which Thrombosis occurred in connexion with Fatal Pulmonary Embolism.*

	Cases.		Cases.
Iliac veins	6	Hepatic vein	1
Saphenous veins	3	Uterine "	1
Femoral "	2	Ovarian "	1
Inferior cava	1	Veins of leg	1
Renal vein	1		

The symptoms of simple non-infective phlebitis are chiefly those of a localised thrombosis; the constitutional disturbance, if the case is uncomplicated, is not usually severe. There may be an initial rigor followed by a rise of temperature and pulse, but more often the first noticeable symptom is pain, felt most commonly in the left calf. This pain may at first be intermittent, subsiding for a few hours, and then recurring with increased severity; if the deep veins are affected it is of cramp-like character. These symptoms are coincident with the formation of a thrombus and the commencement of phlebitis. If the phlebitis spreads the temperature rises, perhaps to 101° or 102° F., and there is sometimes sweating; pain increases, especially if the large veins are concerned, and there is local tenderness. The amount of œdema is variable, for the occurrence of œdema in cases of venous obstruction depends upon a variety of conditions and is by no means the simple matter which it has been sometimes represented. It results from "a disturbance of the normal equilibrium which exists between the blood, blood-vessels, tissues, and lymphatics"[36] Much will depend upon the rapidity, extent, and position of the thrombosis, the condition of the venous coats, the possibility of collateral circulation, the force of the blood stream, the precedent degree of venous and arterial pressure, and the composition of the blood. Variations in these factors account for the remarkable differences observed as to the occurrence of œdema in venous obstruction; thrombosis of the femoral vein or inferior vena cava, for instance, may be attended by extreme œdema, by very little, or by none.

Doubtless the production of œdema depends largely, as Cohnheim taught, upon increased intravascular pressure, increased permeability of the vessel wall, or both of these conditions. The obstruction to the return of venous blood caused by the thrombus will give rise to increased intravascular pressure behind the obstruction; and the interference with the nutrition of the capillary endothelium will lead to increased permeability of the capillary walls and therefore to the easier transudation of serum. This will also be influenced by hydrostatic pressure, as seen in the effect of position and the greater frequency of œdema in connexion with thrombosis of the lower than of the upper limbs. But this is not sufficient to account for all the phenomena of œdema. For if the lymphatics can carry off the effused fluid there will be no œdema. And the facility of absorption depends, not only upon the quantity, but also upon the quality of the fluids to be absorbed. The larger the amount of proteid contained in the fluid the slower and more difficult is absorption and watery solutions of crystalloids are absorbed with a rapidity proportionate to their dilution. The presence or absence of inflammation is therefore of importance in the production of œdema, for if inflammation is present the fluid which escapes into the tissues contains more proteid and is of higher specific gravity than that which escapes as the result of mere venous congestion. The influence of the nervous system must also be taken into account, for, as shown by Cornil and Ranvier, if in an animal a vein is tied and the vaso-motor nerves are divided the arteries dilate, more blood is carried to the part, and the tension in the capillaries leads to exudation of fluid and to œdema. Ranvier had previously shown that if the inferior vena cava is ligatured and the sciatic nerve is divided in one limb œdema only occurs in the limb in which section of the nerve has been made. Dr. Lazarus-Barlow, who has done important work in this relation, has called attention to the part played by the tissues in the production of œdema. He says:[37] "It is astonishing how in all discussions concerning lymph and œdema formation the tissues have been left out of consideration, when we remember that every condition which affects the small blood-vessels, and especially the capillaries, must at the same time affect the tissues also. In some cases even in which œdema occurs the tissues are affected first and to the greatest extent. It is a fault in the mechanical explanation both of lymph and of œdema formation that it places the tissues absolutely at the mercy of the vascular system; the amount of lymph which the tissues receive according to that explanation does not depend upon the needs of the tissues but upon the condition of the blood-vessels. And yet the whole *raison d'être* of the circulating system is the existence of the tissues. Normal lymph-formation and œdema-formation must be the ultimate result of at least two processes, one in which the tissue cells are paramount, the other in which the blood-vessels are paramount."

During hæmostasis the tissues are affected in two ways: they are deprived of nutriment and the waste products of their own metabolism are not removed. This leads to an active arterial congestion and an increased flow of lymph. Part of this lymph is carried away by the lymphatics, but if there is more than can be so disposed of œdema results. It is evident that in venous thrombosis both these conditions are present; there are diminished nutrition of the tissues and accumulation within them of the products of their metabolism; upon this follows an increased flow of lymph and upon the capacity of the lymphatics to carry this away depends the occurrence or not of œdema. It has already been pointed out that the degree in which absorption of effused fluid takes place depends upon the nature of the fluid, and this again will depend upon the composition of the blood, the condition of the vessels, and the presence or absence of inflammation.

Enough has been said, I think, to show that the production of œdema in venous thrombosis is the result of a variety of complex conditions. Moreover, it will depend somewhat on the size and position of the affected veins.

If a superficial vein is inflamed the skin over it shows a dull red line wider than the vein, along which is an area

[36] Lazarus-Barlow: Manual of Pathology, 1904, p. 218.

[37] Op. cit., p. 202.

of tenderness, the vein may be felt solid with clot, and there is little or no œdema. If the intramuscular veins are implicated there will be more pain and some deep swelling, the limb feeling tight and heavy but showing little superficial œdema. If a main trunk is obstructed, as the femoral, there will be more general œdema and the limb may become tensely swollen. There may still be but little constitutional disturbance, and the chief danger to be apprehended is the detachment of clot. If the patient is kept at rest these symptoms may gradually subside, the circulation through the veins involved may become re-established and the limb after a time may completely regain its normal condition. But in many cases some of the affected veins are permanently obliterated, and when large trunks are involved they are often left with the walls thickened and lumen diminished by the adhesion and shrinking of organised clot. I have found some of the smaller veins of the calf blocked by firm adherent clot in cases where the limb appeared to have completely recovered from attacks of phlebitis. The veins of the lower extremity are much more often attacked than those of the upper limb and those of the left more often than those of the right limb; the disease begins very commonly in the deep veins of the left calf. In this class of cases there is not so great a liability to recurrence as in those of gouty origin. I have had the opportunity of observing several patients for varying periods up to ten years in whom there has been no recurrence after a severe first attack. A satisfactory subsidence and recovery is, however, not always the rule. The thrombus may extend in the direction of the blood current and so to the larger trunks, causing increasing embarrassment to the circulation. Thus from the femoral vein coagulation may spread through the iliac to the inferior vena cava, or from the veins of the neck and upper extremity to the superior vena cava, and thus to the heart. Professor G. M. Humphry described such cases with characteristic accuracy in a thesis on coagulation of the blood in the veins, published in 1859.[58] I have seen a case in which the thrombus extended as high as the renal vein and in which recovery took place but with permanent obstruction of part of the vena cava. When this occurs an enormous development of the superficial veins of the groin and abdominal wall usually takes place for carrying on the collateral circulation. A similar condition has been observed in connexion with obstruction of the superior vena cava, though this event is rare except in consequence of the pressure of intrathoracic tumours.

I exhibit a photograph showing the development of the superficial veins 21 years after obliteration of part of the inferior vena cava. In this patient it took about ten years for these veins to reach a troublesome degree of enlargement and it is only lately that the circulation has become completely compensated, so that now there is no difference in the size of the limbs at night and in the morning and the outline of the muscles is easily perceptible. Sir Thomas Watson,[59] in his lectures on the Principles and Practice of Physic, has described, in his inimitable manner, two cases illustrating the effects of obliteration of the vena cava and has given diagrams which show the collateral circulation. One of these was the case of a man who exhibited in a remarkable degree the results of obliteration of the superior vena cava by an aneurysm of the innominate artery. The diagram shows the means "whereby the blood descending from the head found its way at length through many circuitous channels to the heart." The second case related by Sir Thomas Watson was that of a woman in whom three inches of the inferior vena cava were obliterated by the pressure of a tumour of the liver, a great development of the superficial veins of the thorax and abdomen contributing to the collateral circulation. Sir Thomas Watson draws attention to the tortuosity of the veins in which the direction of the current is retrograde.

Mr. C. Mansell Moullin[60] has recorded a case of thrombosis of the inferior vena cava following a fall on the back and over-extension of the spine. The vein was obliterated from a point immediately below the entrance of the renal vein and the left common and external iliacs and the femoral vein were blocked. The right leg was scarcely œdematous; the left was six inches more in circumference, hard, brawny, and severely ulcerated. The contrast between the two limbs was striking and showed that even when the inferior cava has been obliterated, if the other veins are not interfered with, a collateral circulation may be established quite sufficient for all ordinary purposes. But complete and permanent obstruction of the inferior vena cava may occur without any marked development of the superficial veins; as in a case examined at St. George's Hospital where the collateral circulation seemed to have been carried on almost entirely by the greatly enlarged azygos veins. The patient, a woman, aged 50 years, died from pneumonia and post mortem it was discovered that the inferior vena cava, from just above the entrance of the right renal vein to immediately below the entrance of the hepatic vein, had been converted into an impervious fibrous cord. The azygos veins were greatly dilated and tortuous, but the veins of the surface of the body were not dilated or prominent.[61] Dissections of similar conditions in cases of obliteration of the vena cava were described many years ago by Dr. Matthew Baillie[62] and by Mr. Wilson.[63] Uncomplicated peripheral venous thrombosis does not cause gangrene. When this does occur it is in consequence of arterial as well as venous obstruction or else of the addition of inflammatory disturbance.

[58] On Coagulation of the Blood in the Venous System during Life, by George Murray Humphry, M.D., F.R.S. Macmillan, Cambridge, 1859.

[59] Lectures on the Principles and Practice of Physic, vol. ii., p. 250, 1857.

[60] Transactions of the Clinical Society of London, vol. xvii., p. 115.

[61] Post-mortem and Case Book, 1896, No. 145.

[62] Transactions of the Society for the Improvement of Medical and Chirurgical Knowledge, vol. i., p. 127 plate v.

[63] Ibid., vol. iii., p. 65. See also Dr. Peacock in the Transactions of the Royal Medical and Chirurgical Society, vol. xxviii., p. 1, on Thrombosis of the Vena Cava Superior, with reference to other published cases.

The Milroy Lectures

ON

EPIDEMIC DISEASE IN ENGLAND—THE EVIDENCE OF VARIABILITY AND OF PERSISTENCY OF TYPE.

Delivered before the Royal College of Physicians of London on March 1st, 6th, and 8th, 1906.

BY W. H. HAMER, M.A., M.D. CANTAB., F.R.C.P. LOND.

LECTURE II.[1]

Delivered on March 6th.

MR. PRESIDENT AND GENTLEMEN,—Creighton gives the earliest clear reference to influenza in these islands at 1173, when there was an evil and unheard-of cough ("tussis mala et inaudita") at Melrose, while in this same year a certain dean of St. Paul's travelling on the continent found the whole world "infected by a nebulous corruption of the air causing catarrh of the stomach and a general cough."[2]

There can be no room for doubt as to the character of the coqueluche of 1510 whatever be thought of the five "sweats" already discussed or of agues (such as the "hot agues of 1540") occurring during the first half of the sixteenth century. In 1557–58 occurred the epidemic which Dr. John Jones ("Dyall of Agues") compared to the true sweat of 1551; it was "a new burning ague," and "one-third part of the population taste the general sickness." In 1562 there was an outbreak of the "new acquaintance." Mary Queen of Scots was attacked by it in Edinburgh in this year. In 1580 the "gentle correction" appeared, and in 1596–98 there was prevalence of a malady which was in all probability influenza. Fuller describes the "ague" of 1558 as "a dainty mouthed disease which passing by poor people fed generally on principal persons of greatest wealth and estate," and, indeed, "ague" may now be said to have replaced the formerly fashionable "sweat."

"Influenza" seems to have been first applied to an epidemic in Italy, in 1729; at any rate, it is introduced in an account of that outbreak given in a London periodical in 1830. The word first appeared in England in 1743 but did not

[1] Lecture I. was published in THE LANCET of March 3rd, 1906, p. 569.

[2] Some suspicion attaches, Creighton thinks, to a "rheumy infirmity" at St. Albans in 1427 and to the "pestilentia volatilis" recorded by Fordoun in Scotland in 1430 and 1432.

come into common use until the beginning of the nineteenth century. In the seventeenth century influenza was, says Creighton, variously designated "new disease," "new ague," "strange fever," "new delight," "jolly rant," "great cold," "unusual cold," "unusual transient fever," &c.; in the eighteenth century "catarrh" was commonly applied to it. As Robert Boyle says: "The term new disease is much abused by the vulgar, who are wont to give that title to almost every fever that in autumn especially varies a little in its symptoms or other circumstances from the fever of the foregoing year or season."

Catarrh is said to have prevailed throughout Europe in 1610; there was a "new disease" in 1612–13 and also in 1623–24; a "harvest ague" in 1625; a "new disease" in 1638–39 which was accompanied by a "harvest ague"; and a "new disease" again in 1643–44 and in 1651. In 1657–59 one, perhaps two, catarrhal epidemics prevailed, forming part of an outbreak of "new disease." In 1675 there was a universal cold. Evelyn notes (Oct. 15th): "I got an extreme cold such as was afterwards so epidemical as not only to afflict us in this island but was rife over all Europe like a plague." Sydenham gives a chapter to the "epidemic coughs of the year 1675 with pleurisies and pneumonias supervening." The "severe and violent cough" of 1675 was known in the north of England "profanely" by the name "jolly rant." The winter outbreak of 1679 stands out particularly clearly in contemporary records. Sydenham says that 1678–80 were years of "epidemic agues" or "new disease." The agues were tertians or quotidians or duplex forms of these—after two or three intermissions they were apt to become continual fevers. Moreover, at this time a morbus epidemicus, or febris epidemica, was prevailing in Holland and Belgium.

A noteworthy feature in influenza is the frequent coincident affection of animals. The universal sickness of the Siege of Troy has been held to have been influenza because it began upon the horses and the dogs. A London letter of 1658 states: "There is a great dearth of coach horses almost in every place and it is come into our fields." Again, the characteristic rise of mortality in London in 1688 with its accompanying "new disease," was preceded by a slight but universal horse cold and numerous similar occurrences are recorded in the following century.

An account of the "short sort of fever" of 1688 comes from Dublin. Patients experienced "a deep pain in their heads chiefly about the eyes, with unsettled pains in their limbs and about the small of their back, a soreness all over their flesh." Mention is also made of sweating. Such references occur again and again. Willis noted that the epidemic of 1658 was "wont to be cured within a few days by sweat." There was a universal cold in 1693 which "terminated in a critical diaphoresis" (Molyneux). Short, too, speaks of "the sweat" which was "the general crisis" of the disease and alludes to sweating in the outbreak of 1710. In that year and in 1713 there is mention of the "Dunkirk rant," brought over, according to Mead, by troops returning from the continent, a mild fever with pains in the head, which went off easily "in large sweats after a day's confinement."

In 1712 there is mention of a "new ague" and about this time the term "la grippe" came into use. In 1727–29 there was a constitution of agues and other fevers, in the midst of which occurred horse colds and epidemic catarrhs affecting human beings—a writer on one of the latter in 1729 refers to the "profuse sweats."

The great influenzas of the eighteenth century were those of 1733, 1737, and 1743. The first was a widespread fever with catarrhal symptoms and "the sick were in a general way much given to sweats" (Huxham); it was preceded by a disease of horses. The outbreak of 1737 was also preceded by a horse epizootic, sweats occurred as before, and "after the fever was totally gone there often remained obstinate rheumatic pains" (Huxham). The epidemic of 1743 is that referred to by a writer in the *Gentleman's Magazine* as "the disease called influenza in Italy." Horace Walpole dubs it the "blue plagues" and says whole families were attacked. Huxham says: "The greater part by far of the sick had easy, equal, and kindly sweats the second and third day."

Between 1743 and 1762 there was no universal cold but localised influenzas occurred, associated in Scotland (1758), in Dublin (1750–52), and in England (1760) with horse colds. In the great influenza of 1762 perspiration was "a constant symptom" (Baker). Heberden describes an epidemical cold in 1767. Fothergill notes that horses and dogs were attacked in 1775 and mentions that servants, "especially the men who were most abroad," suffered from influenza in that year.

References to "a crisis by sweat after a few days" (Fothergill); "sweats which came on spontaneously" (Haygarth); "considerable sweats" (White); "a plentiful easy sweat" (Glass); and "warm copious sweats" (Reynolds) occur in connexion with this epidemic. Glass's account is particularly interesting: he refers to attacks in institutions; he speaks of "a spontaneous sweat being the natural remedy of the fever"; he even uses the identical expression, "a Diary fever" applied by Caius to the sweating sickness of 1551; finally, he refers to horses and dogs being attacked, as do Haygarth and Pulteney also. In 1782 there came a "wave of catarrhal fevers" in the midst of a "great constitution of epidemic agues"; Gray[2] says the disease came from Moscow and St. Petersburg, possibly from China, and a similar disorder prevailed in the East Indies. He and others refer to perspirations and Carmichael Smith remarks, it "might very properly have been named the sweating sickness as sweating was the natural and spontaneous solution of it."

During the years 1780–85 dog and horse outbreaks occurred, and in a "partial influenza" of 1788 dogs, horses, and cattle suffered. A remark made by Warren of Boston concerning the latter part of the epidemic of 1789–90 in that city is worthy of attention. "The sweats with which this disease terminated," he says, "were by no means so profuse as in the (preceding) autumnal epidemic." He even suspects he may be dealing with a new disease.[4] He is troubled at its sudden return in his city, observing that "the periods of 1510, 1557, 1580, 1587 and 1591, 1709, 1732 and 1733, 1743, 1762, 1767, 1775 and 1782 are much more distant" (i.e., than from fall to spring, as in Boston).

Coming now to the nineteenth century, in the influenza of 1803 mention is made of "a gentle sweat in recovering after about a week less or more."[5] Burne speaks of perspirations in 1831, and there are in that epidemic, as also in 1803, numerous references to disease in horses and other animals. The influenza of 1833 was mild, the symptoms "going off with a sweat in the night"; "perspirations and soreness pervaded the skin" (Hingeston), but "the perspiration was not critical."[6] This epidemic was followed by minor catarrhal attacks and then by the sudden, simultaneous, universal influenza of 1837—again followed by smaller outbreaks, culminating in that of 1847–48. The "tendency to perspiration," and in certain places to "local rheumatic neuralgia" as a sequela (Streeten), and to "profuse perspiration" (Bryson) was noted in 1837. The epidemic of 1847–48 fell largely on the richer classes and deaths in considerable numbers occurred as late even as 1855.

Influenza in the past has thus been emphatically a sweating sickness and this feature is apparent enough in modern descriptions of the disease. Bruce Low in Parsons' report speaks of "profuse perspiration"; Leichtenstern says that hyperidrosis is "an important symptom," and talks of "profuse sweats" and "extensive miliary eruptions"; Goodhart remarks that "a common and characteristic symptom at any rate after two or three days have passed is the occurrence of drenching sweats"; Hood[7] refers to copious perspirations as valuable aids to diagnosis. It may be that as many recent prevalences of influenza have fallen in winter time sweating has been thrown rather into the background. The five English sweats occurred in summer and in the summer outbreak of 1891 sweating was unquestionably a prominent symptom (see Bruce Low on Influenza in Derbyshire in 1891—Parsons' report).[8]

[2] Gray's references to Macqueen's observations are noteworthy—for example, the sudden involvement of a ship's company in the case of the *Fly* sloop of war; his beliefs that the disease is "communicated by human effluvia and not by any matter generated in the atmosphere alone"; and that it occurs "ten or twelve times in the course of a century at no regular or certain periods"; his mention of "bold sweats"; and his confirmation of the account now so familiar of the "strangers' cold" of St. Kilda.

[4] In the observations by the College of Physicians on this epidemic there occurs the passage "Nor was spontaneous and profuse sweating so general a symptom of the last influenza as it was of that of the year 1762."

[5] The Memoirs of the Medical Society of London (vol. vi., pp. 359–361, p. 278, p. 399), and Pearson, Carrick, Falconer, and Nelson Scott all speak of sweats or perspirations.

[6] In this outbreak horses were attacked (Youatt) and the rich mainly suffered, the symptoms being those of catarrh, "ending in a sweat of two or three days with the usual head pains," and the like. Later the symptoms became those of a more "adynamic" illness.

[7] THE LANCET, Dec. 30th, 1905, p. 1881.

[8] Sweating was not invariable in the fifteenth century. To those who did not sweat "a flour of mace with warm beer (was) given and then they sweat." Hecker says: "One form of this disease appeared that was wanting in precisely that symptom that was most essential—namely, the colliquative sweating."

On other features common to dengue and influenza, the relapses[9] for example, more might be said, but of chief importance is the close epidemiological resemblance of the two maladies. Writing of influenza Creighton says: "What kind of infection can that be which has befallen men on both sides of the Alps within the same short time, in the twelfth century as in the nineteenth," which has "lasted unchanged through so many mutations of things, from mediæval to modern, and from modern to ultramodern." The English sweat, too, he finds was "volatile in its manner of travelling, like dengue, influenza, and others of the "posting fevers of former times," yet, as we have seen, he does not admit the identity of the fifteenth and nineteenth century sweats but accepts a strange theory which has had a remarkable vogue, and reference to which will serve as an introduction to other members of the sweat family.

Popular rumour is said, by Creighton, to have associated the original outbreak of English sweat with the arrival of Henry VII.'s mercenaries in England. Forrestier says that the disease "first unfurled its banners in the City of London on the 19th September." There is, however, an entry in the Croyland Chronicle which suggests that the sickness may have been present before the mercenaries arrived, for Lord Stanley is reported to have excused his non-appearance at Bosworth Field on August 22nd because he was suffering from the sweating sickness. There is nothing to show that the mercenaries were even ill and, as Creighton remarks, Hecker has passed "clean into the region of conjecture in assuming sweat had prevailed among them." It was pointed out, however, in the *Quarterly Review* of January, 1887, that the nationality of the mercenaries might be regarded as affording confirmatory evidence. They are stated in Hall's Chronicle to have been "a scum of Bretagnes" but Creighton gives reasons for concluding that they were Normans and then adds that in the early part of the eighteenth century "an almost identical type of disease began to show itself among the villages and towns of that very region of France, the lower basin of the Seine, where the mercenaries of 1485 had been recruited." Hecker had already pointedly called attention to the similarity between the Picardy and English sweats but the former he considered could not "have proceeded from the English sweating sickness ..... a whole century ..... and what vast national revolutions" having intervened. He, moreover, laid stress on the "similarity and isolation of all the five epidemic sweating fevers ..... and the absence of all transitional forms of any duration, which certainly would have existed had Nature intended gradually to form a miliary fever out of the English sweating sickness." Creighton, however, cites instances of spread of disease among strangers by healthy persons and holds that the English sweat "had a real relation to the seats of the Norman and Picardy sweat."[10] He goes further and argues that sweats are soil diseases and in this finds explanation of the "clear intervals of many years" and "sudden bursting forth anew"; he adds, "What became of the specific virus from 1485 to 1508, to 1517, to 1528, to 1551 and after?"

Two facts appear to deserve mention here: first, communication with the continent was to a far larger extent limited to the summer months in the fifteenth and sixteenth centuries than is now the case and each of the five recorded outbreaks of sweating sickness, as a matter of fact, occurred in summer; second, the great trade relations of Tudor times were with the Hanse towns.[11]

It will be remembered that when the fourth sweating sickness of 1528–29 invaded the continent these very towns were specially attacked, and having in view the subsequent behaviour of influenza—in 1729, 1732, 1742, 1781, 1788, 1799, 1833, and 1889 it advanced upon Europe from the furthermost parts of Russia—it may be surmised that it was from the Baltic that the English sweating sickness came. Great interest none the less attaches to the sweating sicknesses of Europe, among which this Picardy sweat has received special attention. Hirsch has fully discussed the confusion engendered in the seventeenth and eighteenth centuries by selection of a variable exanthem, presenting itself as a symptom in numerous maladies, for designation as a disease entity. Hoppe and Welsch described a miliary eruption in a disease of puerperal women—doubtless the present-day puerperal scarlet fever—and inasmuch as this "childbed purples" was associated with sudamina it became the fashion to describe all maladies in which sudamina occurred as "purples." Puerperal fever and rheumatic fever, says Immermann, were doubtless often thus designated, and to these may probably be added influenza, cerebro-spinal fever, relapsing fever, and other diseases. Both Hirsch and Immermann emphasise the unreliability of the early records, but Hirsch, following Hecker, collected particulars concerning 194 outbreaks of "suette miliare" occurring between 1718 and 1874 in Picardy and elsewhere, and the existence of a disease species standing out from behind all the "friesels" and "purples" of the older writers has become quite an accepted doctrine. Now the accounts given of the Picardy sweat are, to a large extent, open to the criticisms which Hirsch and Immermann direct against seventeenth and eighteenth century "friesels" and "sweats" generally. Hecker selects "one of the most ancient" (Abbeville, 1733), and also "one of the most recent" (Oise and Seine et Oise, 1821), and concludes, from the accounts given, that "the miliary fevers, which have appeared in France in recent times, do not differ in any essential point from those of more ancient date." The two descriptions relied upon are, however, far from being convincing in regard to this matter, and it would appear probable that some of the outbreaks included in Hirsch's catalogue were really typhus fever, possibly associated with relapsing fever, notably that in Languedoc in 1782 (with its strange exanthem described by Pujol) which in a few months carried off 30,000 people; some again were presumably relapsing fever (for example, the London outbreak of 1741); a number were almost unquestionably influenza (Arbuthnot says the influenza epidemic of 1733 ended "in miliary eruptions" in France); others finally may have been cerebro-spinal fever.

A study of Hirsch's table shows that 90 per cent. of the outbreaks from 1718 to 1832 were practically confined to Picardy and its near neighbourhood, whereas from 1833 onwards they range far more widely over France. Hirsch writes as if there was little doubt as to the identity of the outbreaks which he describes, but Rayer, from whom he takes his information (his tables are lifted *en bloc* from Rayer's book), speaks with much diffidence on this subject.[12]

Reference to English records shows that relapsing fever first began to make its mark about the time when the Picardy sweat appeared. Creighton refers to a supposed case in London in 1710, to the outbreak of 1727–29 in which sudamina are described, to cases in Edinburgh in 1735 accompanied by large plentiful sweats, and to Rutty's cases in Ireland in 1746 with miliary pustules and relapses. Indeed, in England between 1750 and 1760 there arose a controversy "as to whether there was in reality a distinctive kind of fever marked by miliary eruption," some contending that the phenomena were caused by the mode of treatment, others arguing, as did Rayer and the historians of the Picardy sweat, that "miliary fever was a natural form." Dr. Fordyce in 1758 wrote his "History of a Miliary Fever" and Ormerod described the relapsing fever of 1847 under the same name. With all this it may be borne in mind that the

[9] In the sweating sickness sufferers are said to have presented "repetition of the disease even to the twelfth time."

[10] Having in view the fact that the Picardy sweat was by no means confined to Picardy it seems useless to labour the question of the origin of the mercenaries. There is no evidence that the Picardy sweat existed in the fifteenth century, the records commence in 1718. Oddly enough, according to the chroniclers, when the English sweat overran the continent it avoided France.

[11] As Creighton says: "While the Portuguese and Spaniards were navigating in tropical waters the English and French were sending most of their expeditions to the North," or to quote another authority: "English commerce was chiefly carried on by means of the English Channel and the German Ocean and the maritime enterprise which English seamen naturally emulated was not that of the Italian Republics but of the Hanse towns." In Hakluyt's Voyages there is an account of "The Discovery of Muscovy" in 1553, enterprised by Sir Hugh Willoughby and performed by Richard Chanceler. Many years before, this trade with the Hanse towns had reached its climax. "Lord Novgorod the Great," as the most easterly Hanseatic municipality styled itself, was in the fourteenth century a city with 400,000 inhabitants, the territory under the control or influence of which stretched from the White Sea to Lithuania and from the Gulf of Finland to the principality of Vladimir.

[12] Indeed, he says: "L'expression 'fièvre miliare' a été employée pour désigner des maladies si différentes qu'il y a réellement des épidemies qui n'ont de commun que les titres des ouvrages où elles sont décrites." Furthermore, it transpires from Rayer's account, that with regard to many of the outbreaks he had no information beyond the fact that suette miliare was reported to have occurred at the place in question. Again, his report shows that in many instances where only a particular village or commune is mentioned the disease was really fairly widespread. Thus, under Epidemie de Suette à Fréneuse (1735) we read: "A la même époque la suette regnait également dans les environs de Paris, à Meaux, Villeneuve, St. Georges, dans le Vexin français et normand" (p. 430); again, Paris was attacked in 1747 (p. 448); Orleans, and the environs of Paris also, in 1733 (p. 447).

scene of Marlborough's wars was largely laid in Flanders; Ramillies, Oudenarde, and Malplaquet lie just north of Picardy and upon Picardy the French armies must have been largely dependent for supplies. Guizot writes that in 1708 "the destitution in France was fearful," and again when peace was concluded at Utrecht he says, "The peasantry were reduced to browse upon the grass in the roads and to tear the bark off the trees and eat it." Carlyle tells how (in the years when the "sweat" prevailed in Picardy) Paris was cleared out periodically by the police, "and the horde of hunger-stricken vagabonds ..... sent wandering over space ..... for a time." Here was scope for famine fever truly, and there can be little doubt that many of the early Picardy sweats were of that nature. The descriptions given by Rayer do not, it is true, correspond with those of nineteenth century authors in that the critical sweat seems, as a rule, to have appeared earlier than the fifth day and the relapse (when noted) earlier than the fourteenth. Koch, however, in recently describing relapsing fever in East Africa comments upon the short duration of each attack.[13]

When influenza left Europe in the "fifties" Picardy sweat disappeared also. There were sporadic prevalences in the "sixties," including a more extensive one in 1866 and a few in the early "seventies." In 1887, however, a very aberrant or bizarre form of Picardy sweat, as the French authorities say, appeared in Poitou, of which more anon.[14]

Hecker includes among sweating sicknesses the "cardiac disease" of the ancients and the Roettingen sweating sickness. The former it seems was compared by Houlier to the English sweat, and later writers feel therefore under obligation to refer to it. The full description given by Hecker suggests that it was a kind of olla-podrida of disease, and of its epidemiological features nothing is known. On coming to the Roettingen sweating sickness of November, 1802, we may clearly claim to be on familiar ground. In this little community of about 250 country people, living in a village surrounded by mountains some 20 miles south of Würzburg, "strong vigorous young men" were suddenly seized with "unspeakable dread" and developed "profuse, sour, ill-smelling perspiration," with "lacerating pain in the nape of the neck," while "in most cases all this occurred within 24 hours."[15] Now when Roettingen was thus attacked influenza, according to Hirsch, was prevailing in Germany; accounts are forthcoming from five localities only (Frankfort-on-Main, Cologne, Mayence, and Hanau in February; and later in April, Paderborn), and, curiously enough, three of the five are in the neighbourhood of Roettingen. To demand, therefore, as Hecker does, that the "mist-born spectre" of 1529 should be newly "drawn from the clouds into the midst of Germany" is entirely superfluous.[16] He writes, however, "We do not hesitate ..... to pronounce the Roettingen fever to have been the same disease as the English sweating sickness"; and here we may agree with him, adding the conviction that both were influenza."[17]

There now remains to be considered yet another sweating sickness, a malady, too, of the "posting" character—viz., dengue.[19] In Paris on the outbreak of influenza in 1889 an animated discussion arose as to whether influenza or dengue was in question.[19] De Brun of Beyrouth had described the latter as it occurred in the Levant and the manner in which it was "continuous" in south-eastern Europe "with the succeeding influenza." His memoirs came under discussion when Paris was attacked by influenza and the question as to the relationship of the maladies was naturally raised. Rouvier in his "Identité de la Dengue et de la Grippe Influenza," has strongly maintained the two diseases are one and the same. Ringwood says that he observed dengue (introduced from Egypt by troops in 1885) at Kells and watched it gradually becoming merged into the influenza of 1890; he considers that his neighbourhood for five years suffered from "influenza complicated by dengue, or dengue with modified cases which are commonly called influenza"; and he adds, when dengue "is widespread over tropical countries ..... the British Isles are visited by so-called influenza, which I maintain is dengue." Again, Dabney gives an account of an epidemic resembling dengue which prevailed in and around Charlottesville and the University of Virginia in 1888 and there is a notable account by Godding of an "obscure outbreak of dengue" on the *Agamemnon* in the Indian Ocean in 1889, with the remarkable postscript: "Since writing the above H.M.S. *Agamemnon* has returned to Malta, where influenza has been rife. The crew of this ship have suffered much less up to the present than any of the other ships. Has the dengue protected us?"

Very interesting, too, are the Queensland outbreaks of dengue of 1897–98 and 1905. The resemblance of the pains to those of influenza, the absence of some of the symptoms usually regarded as characteristic of dengue, and the conviction expressed by some observers that the disease was "that we call influenza in England" are specially noteworthy. Once more there may be cited the recent dengue outbreaks in the East Indies described by Stedman in 1902; some of the cases would have been thought to be influenza "had it not been for the prevalent epidemic of dengue." Note may also be made of the dengue with coryza and "at times catarrh of the throat and trachea" at Hong-Kong in 1895. Finally, the testimony of Domenichetti referred to by Parsons may be adduced. Against all this must be set the evidence quoted by Leichtenstern and Parsons. The former cites Zülzer, von Düring, and Skottowe, the latter Sandwith and Limarkis—all observers who had seen both diseases. Leichtenstern's witnesses deal with the epidemiological side of the question and will be referred to later. Sandwith and Limarkis lay stress on clinical distinctions. It may be noted, *inter alia*, that the former considers the dengue of Egypt to be less severe than that of India, Aden, and the United States, and says "there are many varieties of dengue," and notes it resembles influenza in that "epidemics differ from previous outbreaks"; while he and Limarkis agree that convalescence from "influenza" is usually rapid.

The clinical differences upon which emphasis has especially been laid are the initial and terminal rashes and the joint affections of dengue and the catarrh and lung and nervous complications of influenza. But exceptions are the rule. Again and again lung complications are wanting in influenza. This was noticed by Henisch "in the first outbreak of grippe in 1580" and by numerous observers in the last great epidemic of 1890. On the other hand they may occur in dengue (von Düring, Hong-Kong epidemic, 1895).

[13] There can be no question as to many of the later continental sweats being influenza, but it is interesting to note Rayer comments on the fact that Mead described the sweat as being imported into England in 1713; this was, of course, the famous Dunkirk fever or Dunkirk rant of that year. Another reference of Rayer is very instructive; his outbreaks occurred as a rule between 43° and 59° north latitude (though Hecker includes an outbreak in London), but he points out that M. Degenettes has described miliary sweat at Gizeh on the Nile. This outbreak which, had it occurred nowadays, would no doubt have been called dengue, serves to link up in a most unexpected manner identical diseases occurring under very differing conditions, in distant countries, and removed from one another by long intervals of time. Geographically it is interesting to note that of 89 departments in France no fewer than 55 are included in Hirsch's list of 194 outbreaks, though a strip of territory in the north-east of the country has been especially involved, and in this it has been two departments close to Paris (Seine Oise and Oise) and the department Bas Rhin, which have especially suffered.

[14] Immermann quotes a few recent instances of "Schweissfriesel" which he regards apparently as examples of the true idiopathic sweating fever, but his account of this supposed disease really adds but little to Hirsch's. The Hallerndorf outbreak of July, 1888 (Riedel: Münchener Medicinische Wochenschrift), 1889, 10) only consisted of 14 cases (two men and 12 women) with four deaths. The Gurkfeld outbreak (Drasche und Weichselbaum; Wiener Medicinische Blätter, 3, 1892) appears to have prevailed coincidently with cerebro-spinal fever and it was a very fatal one, there being 57 cases and 14 deaths.

[15] It is noted "that the patients though bathed in perspiration had very little thirst and the tongue was not dry nor even foul and maintained its natural moisture"; a statement which may be compared with "the tongue was as moist as in perfect health" (Picardy sweat at Abbeville, 1733), or "In influenza [the tongue] is usually moist or only slightly coated." (Leichtenstern, speaking of influenza in the nineties.)

[16] The only account of the disease extant emanates from an observer who "arrived only a few days before the sickness came to an end," scarcely an authority to call up an extinct disease from a vasty deep of 250 years.

[17] Apropos of sweating sickness Hirsch has some interesting remarks on "the coincidence in time and place of the epidemics of miliary fever and cholera." He finds that in 1832 cholera and miliary fever spread simultaneously in the departments of Oise, Seine et Oise, and Pas de Calais. Again, "The same fact was observed over a larger area in the second epidemic of cholera in France in 1849." Moreover, in 1853 the two diseases occurred side by side and elsewhere similar coincidences were observed, in 1852 in Meiningen and in 1849 and 1866 "at many places in Belgium and Luxemburg." Curiously enough, in this country a similar coincidence in time and place has been observed between influenza and cholera (Thompson, Bristowe), and Hecker from Germany notes that "the influenza of 1831 was immediately followed by the Indian cholera." Is there not here further reason for concluding that influenza and some of the miliary fevers are closely akin if not identical?

[18] I had the opportunity some years ago of studying the papers relating to this disease collected by the late Dr. Christie which were intrusted to me by Dr. J. B. Russell and Sir Shirley Murphy and are now the property of the Epidemiological Society.

[19] The same topic was debated in THE LANCET and in medical circles in India (Sandwith: THE LANCET, July 5th, 1890).

FIG. 1.

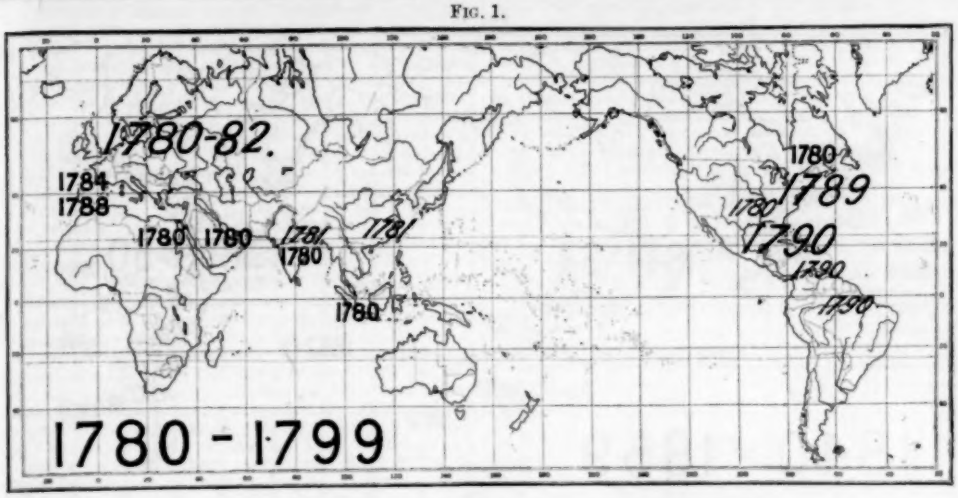


FIG 2.

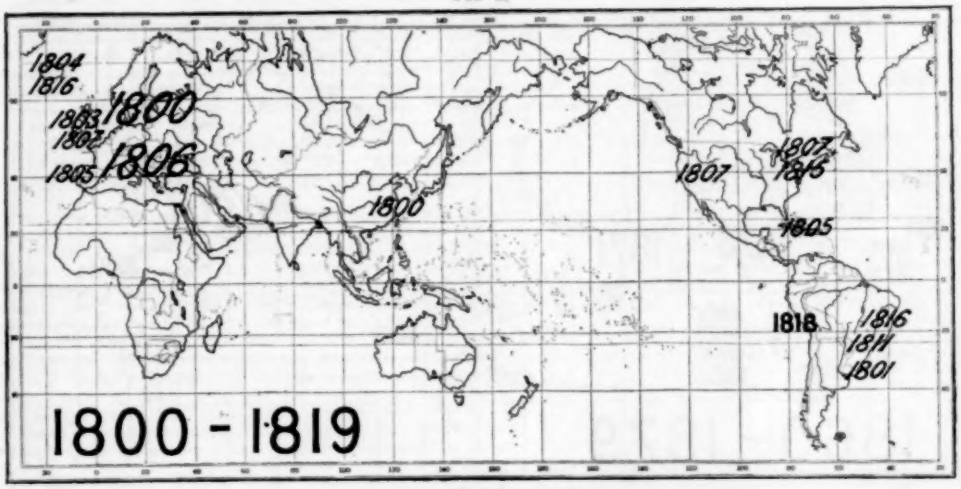
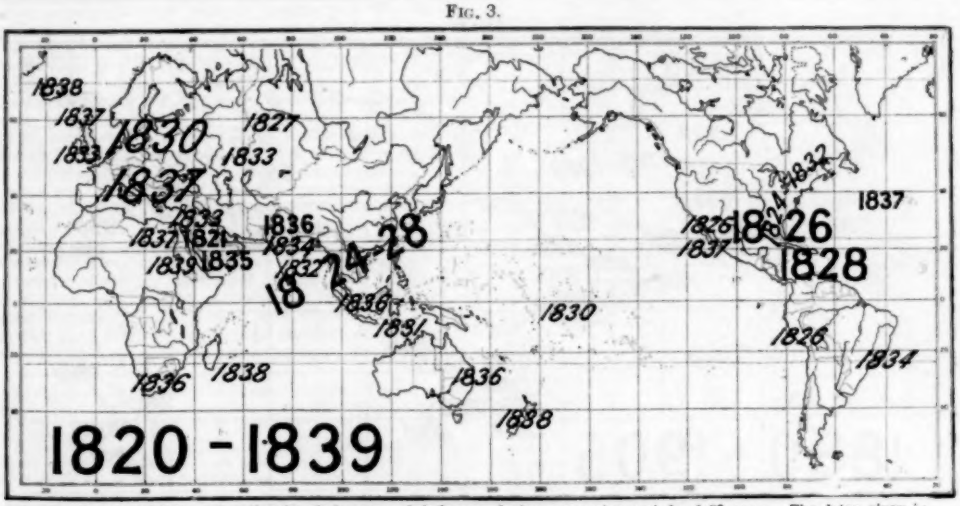


FIG. 3.



Geographical distribution of outbreaks of dengue and influenza during successive periods of 20 years. The dates given in ordinary figures are those of major or minor prevalences of dengue, while italic figures relate to influenza outbreaks.

FIG. 4.

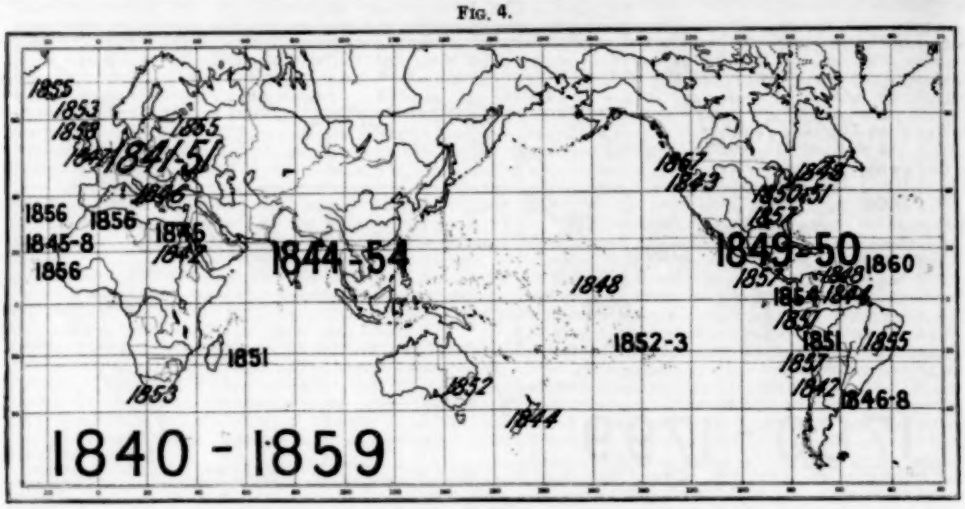


FIG. 5

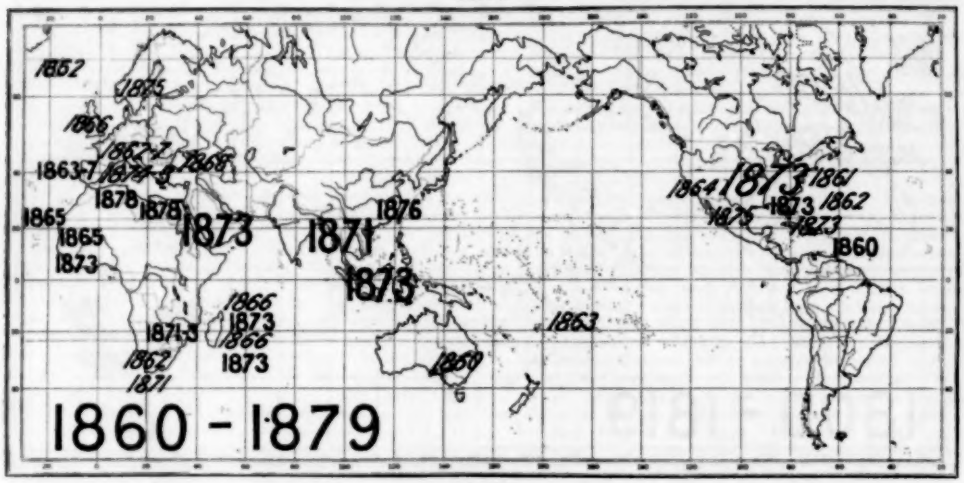
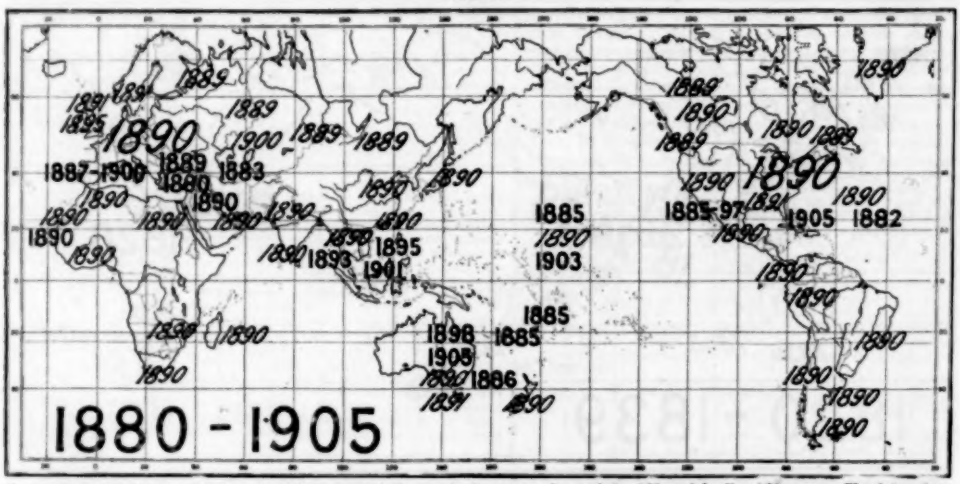


FIG. 6.



Geographical distribution of outbreaks of dengue and influenza during successive periods of 20, and finally of 25, years. The dates given in ordinary figures are those of major or minor prevalences of dengue, while italic figures relate to influenza outbreaks.

The rash or rashes of dengue are by no means invariably met with (Skottowe's account and the Queensland epidemics); the terminal rash may be miliary in form (Holliday, New Orleans, and Thomas, Charleston); and rashes—morbilliform, scarlatinal, urticarial, and miliary—may occur in influenza. In the later epidemics of dengue swelling of joints has been uncommon (de Brun, Mordtmann, von Düring, and Skottowe) and joint pains may occur in influenza (Bristowe). As instances of the confusion which reliance upon clinical distinctions may produce the Queensland epidemics and that described by Skottowe may be referred to, or the outbreak in Fiji in 1890 may be cited; we are told there was no influenza in Fiji in that year but "a prevalence of catarrhal complaints was met with ..... and about the same time a few cases of smart fever, with headache, pains in the eyeballs, *quasi* rheumatic pains in the limbs, and blotchy red rash were observed, but these were recognised as dengue." (Parsons, First Report, p. 49.)

If we turn from clinical to epidemiological distinctions confusion becomes worse confounded; most remarkable of all is the manner in which, on an extended historico-geographical survey, the two diseases merge one into the other. Thus the repeated invasions of the West Indian islands by influenza in the latter part of the eighteenth and early part of the nineteenth centuries are well attested (Figs. 1 and 2); but between 1820 and 1840, when influenza was almost pandemic, there was in the West Indies no influenza but a severe outbreak of dengue. (Fig. 3.) Contrariwise, between 1850 and 1905, despite prevalence of dengue elsewhere, no dengue, only influenza, is forthcoming from these islands. (Figs. 4, 5, and 6.) In 1826–28 "dengue" raged in the West Indies, in the Southern States of the Union, and in the north of South America (Fig. 3); coincidently "influenza" was prevalent over the Western Hemisphere and notably in the Southern States of the Union, in Mexico, and in Peru. In 1850 dengue became diffused over the Southern States (Fig. 4) and at the same time influenza prevailed there and elsewhere. Dengue was in Alabama and Louisiana in 1873; simultaneously influenza spread there and in the Northern States. (Fig. 5.)

With these phenomena in the Western Hemisphere may be compared the behaviour of the two diseases in India and the East Indies. Taking the widespread influenza epidemic of 1781–83, India suffered, and coincidently India and the East Indies presented a dengue prevalence. (Fig. 1.) In 1824–28 influenza was confined to the Western Hemisphere (save for outbreaks in Russia and Siberia); dengue prevailed in India and Further India. In 1831–37 India and Further India with the rest of the world underwent attack by influenza. (Fig. 3.) In the next period of widespread influenza dengue alone is reported from India and Further India (Fig. 4); again in the "seventies," when influenza is spread abroad in the Western Hemisphere dengue alone appears in India and the East Indies, but it is then as widely distributed as is influenza on the other side of the world. (Fig. 5.) The escape during recent years of places in the Western Hemisphere, formerly favoured seats of dengue, and their involvement in influenza prevalence may be set against the fact that in the East Indies, China, and Australia dengue has been reported from localities which suffered but lightly in the last great influenza pandemic.

Two outbreaks which illustrate points already discussed may be here referred to. Dr. R. A. Dunn, in the winter of 1904–05, encountered in East Herts "an epidemic simulating influenza."[20] The disease was widespread, of low mortality, and mainly affected children; relapses were common, convalescence was prolonged, a few cases presented a rash and later desquamation, and in at least one instance a miliary eruption was observed. The disease assumed three types: scarlatinal, cerebro-spinal, and typhoidal, but Dr. Dunn concluded that he was dealing with one disease, for the different types were commonly associated in the same household.[21] The student of influenza outbreaks is so accustomed to finding influenza described as a new disease that the fact that the East Herts epidemic was credited with being the first of its kind is not altogether surprising; yet in Parsons's report the difficulty of distinguishing influenza from scarlet fever and cerebro-spinal fever (the diseases from which diagnosis was held to be most difficult in East Herts) is noted and, as a matter of fact, influenza, so-called, was prevalent in London and in other parts of England when the East Herts prevalence occurred. A point of special interest in the outbreak is undoubtedly the occurrence of secondary or terminal rashes (described by Clark, Thresh, and others), for it would appear that when "influenza" *escapes* as it were from the now well-nigh immunised urban populations of this country and *sports* in a comparatively sparsely populated rural district, it assumes close resemblance to dengue—indeed, had the East Herts outbreak occurred in a tropical town, I am assured by an observer who has seen dengue in the tropics that it would undoubtedly have been regarded as an epidemic of that disease.[22]

The second outbreak, half sweat, half measles ("moitié rougéole et moitié suette"), occurred in Vienne in 1887 and was reported upon by a Commission with Dr. Brouardel at its head.[23] It was declared to be Picardy sweat (of which very little had been heard for half a century), or at least a "suette à forme rubéolique," and the Commission refers to outbreaks presenting this "bizarre" form in Périgord in 1841, Poitiers in 1845, Seine et Oise in 1861, and Pas de Calais in 1864. The affinity of the Poitou disease to dengue and to the East Herts outbreak—i.e., to influenza—must strike the reader of the French Commission's report.[24]

It may be urged, however, that admitting the close clinical resemblance between dengue and influenza and the curious coincidences presented in their historico-geographical record there are certain epidemiological distinctions. Thus some observers have maintained that dengue spreads comparatively slowly from person to person, while influenza extends far more rapidly and presumably by atmospheric contagion.[25] The thesis that influenza travels more rapidly than can be accounted for by human intercourse has, however, been disposed of by the more complete records of recent years and is universally discredited. Leichtenstern's references to the fact that Zülzer and von Düring held dengue to be contagious, influenza not contagious, while he himself maintained dengue to be "contagious miasmatic," and so on, have thus ceased to be of interest.

Turning now to the allegations that dengue is a coast disease and unable to rise to any altitude, Manson points out that there are many exceptions. Thus, "in 1870–73 it spread all over India"; again, he says, there is "a

[20] A conference of Hertfordshire medical officers of health was convened by Dr. F. E. Fremantle, at which I was permitted to be present. Dr. Lovell Drage and I urged at this conference that the outbreak was one of influenza.

[21] Dr. M. H. Gordon, who made a bacteriological examination of material obtained from the later cases, only exceptionally found Pfeiffer's bacillus, but almost always the micrococcus catarrhalis.

[22] The Hertfordshire epidemic is, moreover, suggestive of some of the outbreaks of disease described by Bruce Low, for example, that at Raunds in 1891, Laxfield in 1894, and the anomalous influenza of Market Rasen and of a Shropshire village in the same year (see reports of the medical officer of the Local Government Board for 1890, 1891, and 1894, and the Transactions of the Epidemiological Society for 1898–99); outbreaks which Bruce Low found difficulty in deciding to his complete satisfaction were not really outbreaks of influenza.

[23] Bulletin de l'Académie de Médecine, 1888.

[24] The villages and towns in an area some 70 miles by 50 in extent to the south-east of Poitiers were involved. In some instances whole families were prostrated, the elders with "sweat," the children with a disease accompanied by a morbilliform eruption. Relapses were common, the disease was specially apt to be severe in male adults; the case-mortality ranged from 3 per cent. upwards. As regards diagnosis, influenza, la grippe, was not even considered by the commission. Cough and bronchitis, sore throat, and coryza were present in some instances. Measles could be excluded because communes which had recently suffered from measles were again severely attacked by the "new disease." Moreover, the incubation period of the malady was short, only about 24 hours.

[25] Leichtenstern cites Skottowe's report on the dengue epidemic of 1885–86 in the Fiji Islands as showing how a single observer dealing with the two diseases is able to discriminate between them. But the distinction upon which Skottowe mainly relies is the difference in the mode of spread—dengue "hugging the coast," influenza being "disseminated like the wind over all the islands"—and on this point Leichtenstern remarks: "The comparison is interesting but the explanation is incorrect." As regards the existence of two or rather three epidemics in 1885–86 in Fiji Leichtenstern says: "Just before and just after the dengue epidemic there was an influenza epidemic"; Skottowe's own account is to the effect that "a few weeks before and continuing some little time after the dengue outbreak" influenza prevailed or, as he elsewhere puts it, dengue "broke out during the prevalence of an epidemic of influenza." When it is added that the dengue "in many of its symptoms ..... differed considerably from that described ..... in the text-books"; that "the majority of cases ..... were not typical in the ordinary acceptation of the term"; that even in one house "one member of the family was suffering from influenza and another from dengue"; that the cases did not, as a rule, present both initial and terminal eruptions; that Skottowe saw no joint complications and that muscular pains including "aching in the fibrinous tissues and tendinous insertions of the eyeballs" and marked and persistent debility in convalescence were the prominent features in the so-called "dengue"; it may be surmised that not three epidemics but one only was in question.

distribution and concentration of population on the seaboard and along rivers," and "the freedom of communication between communities so located probably determines this preference for such localities."[28] In Queensland in 1893 it was noted that the disease did not hug the coast but no doubt it often does; indeed, it might, *a priori*, be expected that when influenza spreads in the tropics it would do so after the manner of "dengue" and not after that of "influenza" as observed in Europe and North America. Leichtenstern says, as a matter of fact, this is the case.

The most marked contrast of all is the limitation of dengue to hot countries. But here it should be noted that coincidently with involvement of the West Indies and Southern States of the Union by dengue influenza has prevailed in the Northern States. When Philadelphia suffered from the disease which Hirsch says was dengue in 1780 (a disease which on reference to Rush's original account proves, however, indistinguishable from influenza) influenza prevailed in adjacent regions a little further north. In 1784 and again in 1788 "dengue" broke out in Cadiz and accounts of influenza are forthcoming in those years from beyond the Pyrenees. Again, in 1863 and 1867, when dengue prevailed in Cadiz, influenza is reported from over the frontier. Leichtenstern says the dengue of 1784 in Cadiz and Seville was "probably carried by troopships which came from the West Indies," but neither he nor Hirsch[29] mentions the existence of dengue in the West Indies in 1784 or 1788. Similarly Leichtenstern refers the Cadiz epidemics of 1863 and 1867 to the West Indies, "the home of dengue," though again the authorities are silent as to the existence of dengue in "its home" in those years; Hirsch makes mention, however, of influenza in France in both 1863 and 1867 and states that influenza was widely prevalent in Europe in 1781–82 and again in 1788.

Take, again, Arabia and North Egypt. Leichtenstern says that the principal epidemic years there were 1835–36, 1845, and 1868. Now in 1835–36 influenza, according to Hirsch, was also prevalent in Egypt and Syria; while in 1846–47, and again in 1868, it prevailed in Turkey and Constantinople. What becomes, then, of the limitation of the spread of dengue by a particular degree of latitude? The merging of dengue and influenza in 1889, on passing from Egypt and Syria to Turkey and Greece, has already been commented upon. It is surely not a little remarkable that when North Europe (France, Germany, and Russia) present influenza and North Africa (Tripoli, Egypt) dengue, the intermediate countries, Spain and Turkey, yield evidence now of one and now the other disease. It may be added that several authorities deny that dengue is limited to the hot season of the year—e.g., Thomas (Savannah, 1881), De Brun and Rouvier (Beyrouth, 1889), and writers on the Queensland epidemics of 1898 and 1905.

A further point must be considered as it throws light on the likelihood of unreal distinctions between dengue and influenza being drawn. According to Leichtenstern "influenza presents at least two phases, one pandemic and the other endemic, and they follow different epidemiologic rules."[30] He notes as characteristic of the so-called "trailing epidemics," diminished morbidity, less wide geographical distribution, scarcely recognisable communicability, slow development and extension, and continuous diminution in frequency and intensity. He speaks of a "successive lessening of the susceptibility of the population due to their immunisation, &c.," and speculates as to whether "the germ continues to thrive in an attenuated form in the nasopharynx of individual patients ..... the endanthropic attenuated germs" becoming virulent again after a time and thus causing local epidemics.[31] The fact that influenza has "pandemic" and "trailing epidemic" phases is important when it is recollected that, broadly speaking, the influenza countries include some of the most densely, and the dengue countries some of the most sparsely, populated parts of the world. (India and China must be left out of account in making this comparison, as so little is known of their diseases.) Thus in influenza countries "trailers" are commonly met with, while in the dengue countries they are comparatively rare; in the former the disease is a "composite image" of the influenza of pandemic and trailing epidemic phases, and in the latter it appears more exclusively in pandemic phase. Does not this fact, together with differences dependent upon altered climatic conditions, explain the supposed distinctions between dengue and influenza?

If the two diseases be one and the same it does not necessarily follow that the whole world must be swept in a pandemic. Leichtenstern notes that "in former times extensive epidemics of influenza occurred limited to North America alone"; and in 1875 the Eastern Hemisphere escaped lightly when North America was hard hit. There would appear, therefore, to be an "alternating national immunity" as, indeed, Leichtenstern contends. Europe suffers heavily in the "thirties" and "forties" as compared with India, escapes lightly in the "seventies," and suffers heavily again in the "nineties," when India in its turn is comparatively immune. The records are far too imperfect to follow this out in detail; in particular the absence of knowledge of the diseases of the densely aggregated Eastern Hemisphere populations prohibits this.[32]

On reviewing the history of influenza and dengue it is clear that they afford abundant illustration of the manner in which fashionable theories colour accepted descriptions of disease. One feature at any rate is clearly brought out—the extraordinary similarity in their behaviour when they are in pandemic phase. The sudden onset, the tendency to relapse (with altering or modified symptoms), the establishment of greater or less degree of immunity in the populations affected, the "posting character" of the epidemics, the involvement of animals, the attack upon particular classes of the population and upon inmates of institutions, and the return after a number of years to the point of departure, completing the cycle of events. If the range of vision be contracted to some 20 or 30 years we are impressed with the rapid transformations presented; on a broad view, however, the type remains extraordinarily constant and we are forced to the conclusion that apparent instability results merely from interplay between the germ and its environment. Not only in influenza, so-called, but in the dengue of the tropics and the sweating fever of the fifteenth century we may claim to discern the operation of a single disease entity. We may add with Hirsch that "few among the acute infective diseases have manifested in their prevalence at all times and in all places the stamp of uniformity so strongly *in the aggregate of symptoms* as influenza."

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[28] The observations as to escape of certain higher lying portions of the Island of Réunion are referred to by Hirsch and by Leichtenstern and the latter says that similar observations have been made in "Cuba, Jamaica, Martinique, and almost everywhere," though he quotes an apparent exception in a hot year in Lebanon. "Les villages situés aux altitudes les plus élevées ..... le Liban, la plaine de la Becka, l'anti Liban ..... ne furent pas plus épargnés que les villes de la plaine" (De Brun). This same author notes, however, in 1890 the exemption from influenza of the Isle of Man, the Bahamas, the Seychelles, and other places, and that of the Säntis observatory population, 2504 metres above the sea. Still more to the point is his statement that "influenza, too, although affecting both land and sea in the tropics, was confined principally to the chief trade ports."

[29] Hirsch refers to the "perspiration with its pungent odour" in this outbreak of "dengue" and says the poor people called it "piadosa," or the merciful, because of its tendency to a favourable issue.

[30] He says: "At the beginning of the pandemic of 1889 the vis contagii was, as is well known, enormous; the vis morbi, on the other hand, was so slight that it gave rise to ludicrous names ('influenza dinners'). In the later epidemics the vis morbi became more pronounced with the decrease of the vis contagii, owing perhaps to the weakened influenza germs entering into closer symbiosis with other pathogenic microbes."

[31] It is interesting to note that England "the chief maritime country," as Leichtenstern terms it, was apparently infected from America (so he says) in 1891, Germany and France remaining almost exempt, just as when, after prevailing in North America in 1873, influenza invaded Europe in the following year England is believed to have escaped. It may be that England, which as chief maritime country had suffered so severely from 1833 to 1855, was comparatively immune in 1874, but the Registrar-General's returns seem to indicate that there was influenza in that year and the fact must be within the knowledge of many medical men now living. I had what I believe was an attack of that disease in that year.

[32] As there are, nowadays, sceptics who doubt the existence of Influenza in this country at the present time, I may take shelter under the authority of Goodhart (Allbutt's "System of Medicine"), who believes "influenza is still with us." Those who differ may at least be asked to explain where they draw the line, i.e., after 1890, or 1891, or 1892, or 1895, &c.? It remains, however, to be said that the bacteriologist, to whom influenza connotes presence of the bacillus of Pfeiffer, has grave difficulties to contend with if the trailing epidemics be regarded as influenza. In Kolle and Wassermann's recent text-book it is admitted that Pfeiffer's bacillus occurs in people who have not influenza, but this is justified by explaining that a similar phenomenon presents itself in diphtheria, cholera, and enteric fever. Ebstein (Münchener Medicinische Wochenschrift) finds Pfeiffer's bacillus often absent in influenza and present in other diseases, and numerous other observers might be referred to as having found it in measles, scarlet fever, whooping cough, &c.; Washbourn and Eyre (Brit. Med. Jour., Dec. 20th, 1902) found it in cases which they describe as "unrecognised cases of influenza." La Semaine Médicale (March, 1905, p. 103) contains an interesting discussion on the bacteriology of an outbreak in Paris (see also THE LANCET, March, 1905), supposed not to have been Influenza, because Pfeiffer's bacillus was not forthcoming.

SPIROCHÆTA PALLIDA (SPIRONEMA PALLIDUM) IN SYPHILIS.*

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SYPHILIS has always been regarded as a disease of an extraordinarily infective or contagious character, hence it is not remarkable that a *contagium vivum* has long been suspected to play the principal rôle in its etiology. Krzysztalowicz and Siedlecki[73] point out that in the sixteenth century Kirscherius and David Abercromby claimed a "*contagium animatum*" as its cause and Deidier (1723) spoke of "*animalcula numerosa*," these terms no doubt being used without much appreciation of what they imply in more modern times.

The list of causes assigned of late years is a formidable one: bacteria of all kinds, cocci, bacilli including the ubiquitous pseudo-diphtheria bacillus, and Lustgarten's bacillus which for a time had an unsettled reign as the "syphilis bacillus" but which is now recognised to be probably identical with the smegma bacillus. Lassar[44] states that more than 25 causes of syphilis have been described during the last three decades. Niessen in 1899 described a bacillus not stained by Ziehl's method but Gram-positive. This inoculated into rabbits produced ulceration, swelling of lymphatic glands, and lesions of the central nervous system in which a prominent histological feature was a peri-arteritis analogous to that found in syphilis in man. Kuznitzky described comma-shaped bodies and bodies like spirilla. Lostörfer described small refractile bodies in the blood of syphilitics which became less numerous during mercurial treatment. Winckler found peculiar spherical bodies in syphilitic local lesions and in glands.

Several authors have believed that the causal agent is protozoal—e.g., Hügel, Horand[1] with his "hémoprotiste," Holzhaüser; lately Schüller[26] and Stassano,[4] the last-named figuring protozoa in all stages of development. Still more recently Siegel[24] has described the minute cytorrhyctes luis, a flagellated protozoon, and he claims that it occurs constantly in syphilitic lesions. This has not been found by more than one or two independent observers and Metchnikoff says that Siegel's descriptions and figures are enough to prove to him that this body is of no importance if it is not an artefact.

Neisser[102 3] also discusses this question. He states that Siegel's bodies can be found in normal blood and emphasises the fact that he claims to have produced syphilitic lesions in rabbits, which are generally considered to be immune from syphilis. To prove the point Neisser inoculated several rabbits with syphilitic material and then after several weeks inoculated monkeys with portions of their kidneys. No lesion resulted. His experiments are strongly suggestive but not absolutely convincing. I have seen peculiar rounded bodies in films from indolent buboes, like those described by Winckler, and which are possibly degenerated cells. They usually stain bluish with Giemsa's solution. More interesting than these are loop-shaped bodies, staining a bright pink with Giemsa's solution, and found in the same situations (see Case 17). The opinion has been expressed by several, including Lassar,[44] that some of these bodies—e.g., Siegel's—may turn out eventually to be related developmentally to the spirochætæ of Schaudinn and Hoffmann. Krzysztalowicz and Siedlecki have seen similar loop-shaped bodies in glands.[73]

The Imperial Board of Health in Berlin commissioned Schaudinn, a biologist already well known by his researches on the malaria parasite, trypanosomes, &c., to investigate Siegel's results, and he requested Hoffmann, a skilled syphilologist, to assist in the research. In a very short time they announced the discovery of spirochætæ in primary and secondary syphilitic lesions. It is a curious fact that Siegel and his cytorrhyctes are not, so far as I can find, referred to at all in the papers they have published.[9 14]

The possibility of spiral forms having a causal relationship to syphilis was first hinted at by Donné in 1837.[78] He found and figured forms to which he gave the name "vibrio lineola." Neumann refers to this observation in his text-book on syphilis (1899). Possibly the vibrio lineola may correspond to what is now named "spirochæta refringens."

Metchnikoff and Roux in 1902 discussed the possibility of spirilla smaller than those of Obermeier or those discovered in a disease of fowls in Rio de Janeiro being the cause of syphilis and came to the conclusion that the agent was more probably a non-motile microbe.[99] Since Schaudinn and Hoffmann announced their discovery Bordet and Gengout[42] state that in 1902 they had seen these same spirochætæ in a case of syphilis, but as they failed to demonstrate them in other cases they concluded that they were of no practical importance.

Literature.—Schaudinn and Hoffmann[5] first describe two forms of spirochætæ occurring in syphilitic lesions not only at the surface but also in their depths and in the lymph glands connected. One form is delicate (spirochæta pallida) 4–10μ long with an average length of 7μ, less therefore than the ordinary spirochætæ of the mouth and those of relapsing fever. They remain alive for several hours in physiological salt solution. They were found in entire and ulcerated skin papules, condylomata, hard chancres, and glands, the age of which varied from five and a half weeks to six months. With the spirochæta pallida they sometimes found a coarser form (spirochæta refringens), particularly in ulcerated lesions. In later papers[6 7 9 15], one of which[6] was given by Schaudinn in opening a discussion on the subject before the Berlin Medical Society, more details are given as well as the distinguishing characteristics of the two forms of spirochætæ. They describe the spirochæta pallida as extremely delicate, weakly refractile, vigorously motile; staining rose-pink with Giemsa's stain; requiring powers of 800 and upwards to demonstrate; long, very thin, and filamentous, spiral or corkscrew-shaped, with pointed ends. Its length varies from 4 to 14μ; its breadth is difficult to gauge, being at most about 0·25μ; the spirals number 6 to 14. These are abrupt, narrow, regular, and deep. It progresses by rotating on its long axis and when at rest shows undulatory movements in its whole length, suggestive of the play of a vibratile membrane. The staining characters distinguish it from all other spirochætæ and also from spirilla, these staining of a bluish or purplish colour by Giemsa's method. The spirochæta refringens is flatter and the spirals are wider, giving it a wavy or undulating form. It is thicker, stains more deeply, and usually has truncated ends. It never occurs in the depths of syphilitic lesions, in glands, or non-ulcerated papules. It possesses a vibratile membrane.

Schaudinn, as a result of his previous studies on similar parasites in the stone owl (athene noctua), placed spirochætæ amongst the protozoa—group flagellata—and no longer with the bacteria. Schaudinn and Hoffmann found spirochæta pallida constantly in surface lesions and also in all available cases in the indolent buboes, in the latter unaccompanied by other micro-organisms. Schaudinn demonstrated them in blood obtained by puncture of the spleen during life.

Buschke and Fischer[13] demonstrated spirochæta pallida in the spleen of a child who died from congenital syphilis and also[16] in blood films taken from the same infant during life. Non-syphilitic children gave negative results.

Metchnikoff and Roux had already[18] succeeded in infecting monkeys with syphilis and now[19] reported that in four out of six cases they found spirochætæ corresponding to spirochæta pallida unaccompanied by other forms. They found them, moreover, in four out of six cases in man in recent scrapings of secondary papules and also in one case of congenital syphilis. In control cases (psoriasis, scabies, acne, &c.) the results were negative.

Raubitschek[23] and Frosch[21] detected the spirochæta pallida in the circulating blood in secondary syphilis.

Wechselmann and Löwenthal,[20] using the "ultra-microscope," described the spirochæta as made up of several segments and noticed what they took to be a nucleus.

Levaditi[27 28 29] found typical spirochætæ in the contents and bases of the bullæ of pemphigus in a congenitally syphilitic infant three months old and also in the spleen, lungs, and particularly the liver of the same case. He considers congenital syphilis to be a spirillosis of the newly born.

Salmon[31] and Hoffmann[10] confirm this result in the pemphigus of congenital syphilis.

* An abstract of this paper was read before the Edinburgh Medico-Chirurgical Society on Jan. 17th. The "superior," or raised, numerals occurring throughout the article refer to the bibliography at the end of the second part.

Jacquet and Sevin [34] found spirochæta pallida in secondary lesions but failed in 23 tertiary lesions examined.

Kraus [35] insists on the necessity for making a considerable number of preparations, as the spirochætæ are often very irregularly and unequally distributed. He observed that in a chancre kept 12 hours on ice, no spirochætæ could be demonstrated, although they were visible in fresh preparations. He has never found spirochæta pallida in controls.

Volk,[36] in the chancres and papules in 14 syphilitics, found the parasite in the great majority. The results were positive in only one out of 14 syphilitic glands and were negative in the glands connected with 17 control, non-syphilitic lesions.

Hoffmann,[1c] in a paper already referred to, notes that Schaudinn and he found spirochætæ pallidæ in non-ulcerated skin papules far away from the genitals (breast and back).

Horand [1] refers to his published papers describing a "hémoprotiste, agent pathogène de la syphilis," and believes that Schaudinn's parasite corresponds to one of the involution forms of this "hémoprotiste."

M. Schüller,[36] in a review of Schaudinn and Hoffmann's paper on the Occurrence of Spirochæta Pallida in Indolent Buboes," doubts whether there is any etiological relationship at all. The parasite may have entered through the ulcerated surfaces. Moreover, bacteria have been found in glands in connexion with non-ulcerated lesions and also in congenital syphilitic lesions. He thinks that the presence of spirochæta pallida in experimental lesions in monkeys does not clear up the question, but simply shows that along with the cause of syphilis the spirochætæ and any other bacteria present have been transferred. He also criticises the technique employed and cannot understand Schaudinn's grounds for placing spirochætæ amongst the animal parasites.

Vuillemin [37] proposes the name "spironema" for spirochætæ with sharp ends. The "spirochæta pallida" would thus become the "spironema pallidum."

McWeeney [38] found spirochæta pallida in nine primary and secondary cases, not in a tertiary ulcer of the palate or in a non-ulcerated, muco-purulent vaginitis. He thinks it possible that tertiary lesions and congenital forms of syphilis may be due to a chronic intoxication caused by absorption of metabolic products of the spirochætæ.

C. Fraenkel [40] writes enthusiastically in support of Schaudinn and Hoffmann and goes further than these authors, claiming that there is no doubt that spirochæta pallida is the cause of syphilis. He found that organism in six varied cases of syphilis.

Vilh. Jensen [41] found spirochæta pallida in a hard chancre and the associated gland and in several entire and ulcerated papules in the region of the genitals. They were not found in control cases, non-syphilitic. He believes that the true cause of syphilis has been found.

Bordet and Bayet [42] consider this the most serious attempt yet made to unravel the etiology of syphilis. Bayet found spirochæta pallida in the spleen of a congenitally syphilitic infant. Lassar [44] discusses the discoveries of Siegel and Schaudinn and reminds his readers that during the last three decades more than 25 causes of syphilis have been described.

K. Herxheimer and H. Hübner [45] demonstrated spirochætæ with Giemsa's stain and also with Nilblau B.R. or Capriblau. They examined 16 cases and in 15 of these they found spirochæta pallida but only in extremely small numbers in some cases. In two of the remaining cases the diagnosis was between soft sore and syphilis. In these no spirochætæ pallidæ were found and the subsequent course of the illness justified that result. They claim to have seen a spirochæta in a section cut in paraffin and stained with Nilblau. Examinations of blood, lymph glands, and congenital syphilitics proved negative.

Kiolomenoglou and von Cube [46] confirmed the fact of the occurrence of spirochæta pallida in syphilitic lesions but they considered it still more important to ascertain whether it was always absent from non-syphilitic lesions. They exercised the greatest care in making and staining their preparations. They found spirochæta pallida in a collection of syphilitic cases, in an inflamed phimosis in which there may have been a masked primary sore, in gonorrhœal pus from Bartholini's gland, in balanitis, in pus from a scrofulodermatic abscess, in an ulcerating cancer, and in condyloma acuminatum. They found forms intermediate between spirochæta pallida and spirochæta refringens and corresponding to neither. Schaudinn, to whom their preparations were submitted, confirmed their opinion that there were more than two species of spirochætæ present, but with Hoffmann declares that all occurring in non-syphilitic lesions, can be, either morphologically or tinctorially, distinguished from spirochæta pallida. Still, one feels that they do not conclusively dispose of all the objections of Kiolomenoglou and von Cube.

Hoffmann [11] with Mulzer found spirochætæ in ulcerated carcinomas of the cervix and skin very similar to spirochæta pallida and which they could not with confidence distinguish from it. In a later paper [12] Hoffmann states that those found in carcinomata have blunt ends.

Babes and Panea [50 51] found spirochætæ pallidæ in two out of three cases of congenital syphilis, in one case occurring especially abundantly in the suprarenals. They were found where characteristic histological changes were best seen—e.g., the liver; but in the suprarenal such changes were not so marked, though the organisms were in great numbers.

Galli-Valerio and Lassueur [52] emphasise the fact that spirochæta pallida has been found in closed lesions—e.g., indolent buboes. They detected it in condylomas and in mucous plaques in six out of ten syphilitics. They failed in two cases undergoing treatment and in a tertiary case, also in a hard chancre and gland connected therewith, and in the cerebro-spinal fluid of two cases.

Krzysztalowicz and Siedlecki (Krakow) [53] give an interesting historical retrospect of the search for the cause of syphilis and furnish full references. They describe several delicate shapes in the fluid from excised glands, very motile, at first oval but on longer observation elongating at both ends as if sending out processes in one line. They describe apparent longitudinal splitting up of spirochætæ similar to what is seen in trypanosomes. They figure coarse spirochætæ as pallidæ, which one should rather incline to place under the "refringens" class. They state that the numbers of spirochætæ pallidæ increase in proportion to the distance from the surface.

Thesing, who at the first discussion in the Berlin Medical Society suggested that the spirochætæ came from the staining fluid, believes [54 55] that they are harmless saprophytes occurring secondarily in syphilitic lesions and penetrating to glands from the surface. He thinks, moreover, that such a flexible body as spirochæta pallida should not be tied down to the constant possession of steep spirals.

Ploeger [62] discusses the morphology and development of spirochætæ and distinguishes them from spirilla by the flagella which the latter possess. He suggests that all spirochætæ the spirals of which measure about 1μ or less should be placed with spirochæta pallida, and those with more than 2μ, with spirochæta refringens. He describes short forms with a terminal knob. He found the spirochæta pallida in two chancres, one gland, and three anal and one vulvar papule. One cannot be certain what proportion this was of the cases examined. Some of the forms seen in films from glands were 20μ long. He, as well as Rille [56] and Mulzer, [70] has seen some apparently attached to red blood corpuscles and the suggestion is made that these cells may convey the parasite throughout the body.

Spitzer [61] demonstrated the presence of the spirochæta pallida in six primary sores; in seven secondary cases even after prolonged treatment; in one ulcerating case of eight years' duration (Spätform), with infiltration of the nose, lips, and lower lid; and in a case, 12 years after infection, in a gumma of the scalp. In this case only one spirochæta was found in three or four preparations. He never found spirochætæ in the blood or in a series of non-syphilitic conditions.

Rille [56] refers to the behaviour of the spirochæta pallida in physiological salt solution and in glycerine. He refers to Bordet's and Gengout's observation of these spirochætæ in 1902 and says that he himself saw them in 1894. He had lately positive results in three primary lesions in the male, in one in the female, and once in an inguinal bubo and condyloma latum. He thinks that the possibility of the spirochæta pallida being a morphological variant of the spirochæta refringens should be excluded. He refers to Donné's discovery of "vibrio lineola" (1837) and his belief that it was the cause of syphilis.

Noeggerath and Staehelin [64] found the spirochæta pallida in syphilitic blood by the following method. They take one cubic centimetre of blood from a vein, mix with ten cubic centimetres of ¼ per cent. acetic acid in water, centrifugalise, and examine the deposit.

Neumann [61] found the spirochæta pallida in six cases, two of which had been treated.

Queyrat and Joltrain [71 72] found the spirochæta pallida in

a quarter of their cases (31 in all) of hard chancre but never in non-syphilitic lesions. They think that it must have a diagnostic significance.

Jesionek,[62] discussing Ploeger's paper,[63] refers to the conclusions of Kiolomenoglou and von Cube and maintains that their results are correct. He refers also to the intermediate forms and suggests that spirochæta pallida and refringens may be developmental stages of one and the same organism. This was before spirochætæ were found in the blood.

R. Kraus and Plantschoff[64] contribute an important paper. They find that spirochætæ disappear from excised chancres when kept and quote Metchnikoff and Roux, who found that after six hours an excised lesion was useless for the demonstration of spirochætæ. This is interesting in view of the generally accepted clinical fact that the syphilitic virus removed from the living body or after death soon degenerates. They found the spirochæta pallida in 32 out of 37 hard chancres; in the negative cases the lesions were necrotic, purulent, or the material was delayed too long in transit. 18 out of 25 papules gave positive results. In the lesions in four macacus monkeys spirochætæ pallidæ were found. Like Ploeger, they saw short forms with from three to four spirals, with spherical bodies either attached to one end or free. They suppose that they are involution forms analogous to those seen in Pfeiffer's phenomenon in the case of the cholera vibrio. On making sections of an excised sore parallel to the surface and examining films from each they found that true spirochætæ pallidæ increased in numbers as they went deeper.

Levaditi and Petresco[65] find that the spirochætæ pass readily and in considerable numbers into blisters produced by cantharides on the surface of syphilitic lesions. They have been successful in this way in demonstrating spirochætæ pallidæ in roseolar eruptions.

Bandler[66] details the methods of staining he has found successful.

Leiner[67] found spirochæta pallida in congenital syphilitic pemphigus. Lannois[68] saw Schaudinn's spirochæta associated with Vincent's bacillus fusiformis. Almkvist and Jundell[69] found the spirochæta six times in seven cases, but never succeeded in films from glands, blood, or non-syphilitic lesions.

Mulzer[70] demonstrated spirochæta pallida in films from 20 out of 22 cases. One of the failures was from a roseolar eruption. He occasionally found them in cells probably of endothelial nature. Some showed a spindle-shaped swelling between the middle and terminal thirds. In one case he found a mesh-like agglomeration of from 20 to 40 individuals. No spirochætæ pallidæ were found in normal smegma in five women and ten men. He quotes Csillag's negative results in three men and 16 women. Rona found spirochætæ in six out of 20 healthy women and in three out of 18 healthy men. Menge-Krönig found them also in women. In 21 out of 29 patients with non-specific ailments Mulzer found no spirochætæ.

Nigris[71 72] claims that he found the two varieties together in the blood. Hoffmann,[14] who saw the preparations, denies that this is the case.

Scholtz[73] doubts whether spirochæta pallida, even when occurring in great numbers in syphilitic lesions, has an etiological significance. It may be that the conditions produced are specially favourable for that organism to grow and develop. He found an apparently undoubted spirochæta pallida in a condyloma acuminatum. In primary and secondary lesions he had 19 positive and 11 negative results and two positive and one negative result in congenital syphilis. He failed to find spirochætæ in roseolar blood in two cases, in buboes in two cases, and in tertiary syphilis in four cases. In 12 controls the results were negative. Hoffmann[14] examined the film from the condyloma acuminatum and averred that only spirochæta refringens was present.

Grouven and Fabry[74] had positive results in 14 out of 20 primary and secondary lesions, in two cases of congenital syphilis, and in syphilitic blood, following the method of Noeggerath and Staehelin.[61]

Rille and Vockerodt[59] in 14 syphilitics found manifest spirochætæ pallidæ in 22 different lesions. They failed in roseolar blood and syphilis hæmorrhagica neonatorum. With Ploeger they think that the spirochætæ have a relationship to the red blood corpuscles. They found them in a case seven or eight years old.

Sobernheim and Tomaszewski[75] in 50 primary and secondary syphilitics found spirochæta pallida in all cases. In eight tertiary syphilitics they failed. In some of the positive results spirochætæ were very scanty and found only after prolonged search. They doubt whether they are actively motile. They consider that spirochæta pallida is the cause of syphilis.

Siebert[76] has found spirochætæ which agree strictly with the type "pallida" indicated by Schaudinn and Hoffmann only in syphilitic lesions. He refers to the difficulties of distinguishing them morphologically and points out that there is no analogous disease in which the number of the causative organism bears no relation to the intensity of the reactions. Here the organisms are generally scanty. He found spirochætæ which in delicacy could not be distinguished from the spirochæta pallida. He is evidently not wholly convinced. His results are positive in 52 out of 66 cases of primary, secondary, and congenital syphilis; negative in six indolent buboes, in seven tertiary cases, in blood, and spinal fluid. He confirms the observations of Klingmüller, Baermann, and Metchnikoff that the syphilitic virus cannot pass through a porcelain filter. His results were also negative in 46 control non-syphilitic cases.

Flügel[77] examined 28 cases, in all being successful. Some showed only one spirochæta pallida after very prolonged search. In the liver of a congenitally syphilitic child he found only one spirochæta. They were frequently in relation to red blood corpuscles (cf. Ploeger, Rille, Scholtz, and Roscher). He found them in the blood by the method of Noeggerath and Staehelin.

Brönnum and Ellermann[78] found spirochæta pallida in two cases of congenital syphilis.

Roscher[79] produces a very long, complete, and carefully detailed paper in three parts. Of primary affections, genital and extra-genital, 31 gave positive results and one was negative. In 16 there were no general evidences of syphilis, but in 11 of these which continued under observation secondary signs appeared later. 30 buboes gave positive results and eight were negative. 55 moist papules were positive, three were negative, of which one had been treated, one was dry, and one was not scraped deeply enough. 34 non-ulcerated papules gave positive results, and six were negative. Plaques on the tonsils were 14 times positive, once negative. Two plaques on the tongue and 14 papules on the lips or at the angle of the mouth were positive. In these, coarse spirochætæ, in addition, were regularly found. Impetigo of the scalp gave four positive results, and blood three positive and three negative results. He never found coarse spirochætæ in glands or in closed efflorescences. In all, 206 syphilitic lesions were examined, 184 with positive and 22 with negative result.

Schaudinn[9] contributed another paper on this subject in October. He found spirochæta pallida constantly in 70 cases and also in tertiary lesions as granular resting forms. He raises the number of spirals in the typical form to 10–26. He states that the new Giemsa stain is the best for its demonstration and advises preliminary momentary fixation with osmium vapour. He claims that the parasite possesses flagella and possibly a vibratile membrane, though this is not yet clearly demonstrable. As these characters separate spirochæta pallida not only from spirochætæ and spirilla but from all other related forms he adopts the name spironema suggested by Vuillemin.[27]

De Souza, jun., and Pereira[80] found spirochæta pallida in nine primary and secondary cases and in one congenitally syphilitic infant with pemphigus. Cultures in human blood with 5 per cent. each of sodium citrate and sodium chloride were negative.

Reisenauer[81] found spirochæta pallida in the liver, spleen, and lungs of a congenitally syphilitic infant.

Hoffmann[13] succeeded in infecting four monkeys (two macacis Rhesis and two cercopithecis) with syphilitic blood.

Babes and Panea[60] found spirochætæ pallidæ in great numbers in the adrenals and liver of congenital syphilis. They suggest that they are like bacterial flagella and might be demonstrated by similar staining methods. They have found spermatozoa-like bodies in the blood of congenital syphilis.

Oppenheim and Sachs[82 83] succeeded in finding spirochæta pallida in 39 hard chancres and papules, failing in 21. They also failed in nine buboes, 21 examinations of blood, 15 roseolar spots, two mucous plaques, seven gummata, and four cases of congenital syphilis. In 42 non syphilitic conditions they found no spirochætæ pallidæ.

Bertarelli and Volpino[84] found spirochæta pallida in 26 out of 42 primary and secondary cases. By the use of a silver

solution method they demonstrated great numbers of spirochætæ in *sections* of the liver of a congenitally syphilitic child and by control observations showed that they had not to do with elastic fibres, connective tissue fibrils, or nerve-endings. Cultures of syphilitic blood were all negative.

Herxheimer and Löser [46] describe the presence of granules in the spirochæta pallida, possibly of the nature of blepharoblasts, also small free bodies with nucleus, protoplasm, and membrane, possibly representing a developmental stage. They think that appearances formerly described as vibratile membrane were simply artefacts. They confirm the presence of flagella.

Nicolas, Favre, and André contribute an important paper.[93] They describe the staining methods which they find most suitable. Their positive results were 4 out of 16 hard chancres, 8 out of 14 mucous plaques, 1 out of 7 buboes, *but not pure*. Examination of two cases of syphilitic pemphigus and the blood in three cases was negative. They examined numerous non-syphilitic lesions without finding the spirochæta pallida. They indicate certain changes of aspect which this parasite may undergo in course of preparation. They state that Widal and Ravant have examined the cerebro-spinal fluid of 15 syphilitics without finding spirochæta pallida. They are not altogether convinced that spirochætæ found in some other non-syphilitic lesions are not spirochætæ pallidæ.

Burnet [90] refers to the finding of spirillar forms in spirillosis of birds by Sacharoff in the Caucasus and by Marchoux and Salimbeni (1902) in Rio de Janiero; in sheep by Laveran and Theiler in the Transvaal (1903); and in tick fever in man by Dutton (1905). He draws analogies between dourine (mal de Cadéras, maladie du coït) and syphilis, the former being due to a trypanosome which can penetrate a healthy mucosa—e.g., vulva of dog or rabbit. He has seen Schaudinn's photographs of the flagella of spirochæta pallida and is not convinced of the reality of the flagella. He agrees with Vuillemin and Schaudinn that the spirochæta pallida is not a true spirochæta and is better described under the new name of spironema pallidum. He describes ten different methods of staining.

Bandi and Simonelli [91 92] found spirochæta pallida in the blood from a roseolar spot and in three out of five secondary lesions.

Fanoni [94] gives his results with original and new Giemsa and with Marino's blue. Three photographs of spirochæta pallida illustrate the article, of which No. 2 (× 1400) is good but Nos. 1 and 3 are very doubtful, particularly No. 3, which is apparently either a wavy piece of fibrin or a drawn-out nucleus.

Gordon [96] failed to detect spirochæta pallida in the lumbar puncture fluid from cases of cerebro-spinal syphilis or tabes with a distinctly syphilitic history.

Paltauf [97] discusses the question of the bacterial or protozoal nature of spirochæta pallida.

Lipschütz [98] discusses the whole question very ably, very carefully, and in detail. His paper merits close study. His conclusions, drawn from a survey of the literature, are distinctly good. He notes that the age of the lesion and even a short energetic course of mercury seem to have little influence on the demonstration of spirochæta pallida. Others [110] state that they disappear during mercurial treatment. In 33 out of 49 cases of primary and secondary syphilis he demonstrated spirochætæ pallidæ. In three typical gummata the result was negative. In 12 non-syphilitic controls the results were negative.

K. Herxheimer [47] in a later paper gives his method of staining with a hot saturated solution of gentian violet after alcohol fixation. He describes the larger spirochætæ as having a double contour, best seen in photographs taken against a dark background. He also describes three forms of granules which he thinks may have something to do with the developmental stages of the parasite—one group within the spirochæta, another attached to it, and the third group free. Little can be said with regard to these except to record the observation. He refers to rodlets and sausage-shaped bodies described by Wechselmann and Löwenthal.

Richards and Hunt [100] describe three varieties of spirochætæ found in syphilitic lesions, one thick, straight, or slightly curved, another thick but spiral, and the third delicate and spiral, corresponding to spirochæta pallida. They found the last organism in three cases in blood from roseola and in one of these cases in films taken on each of ten successive days.

I have already referred to the earlier results attained by Metchnikoff and Roux. They have written further extremely important papers [20 21 92] describing the results of inoculation of syphilitic material into monkeys and the results of the search for spirochætæ in the experimentally produced lesions. I cannot refer here to their successful inoculation of human material in different species of monkeys, to their discovery that only in chimpanzees could secondary lesions be developed, or to their experiments in reference to auto-infection, protective inoculation, and production of an anti-serum. These are all detailed in the papers mentioned above, particularly the second. I can here refer only to their opinions and results so far as concerns the relation of the spirochæta pallida to syphilis. They point out that the tinctorial properties regarded by Schaudinn as differential for the spirochæta pallida are not of absolute constancy. They found in an experimental primary lesion in a macacus monkey a delicate pale spirochæta of typical aspect but staining clear blue with Giemsa. On inoculating material from this sore into a chimpanzee the lesion produced contained a spirochæta exactly like the former morphologically but staining a pale rose colour with Giemsa's agent taken from the same bottle. One can make too much of delicate "nuances" of colouration and other small details. In 31 experimental lesions in monkeys they found spirochætæ corresponding to Schaudinn's organism 23 times: in eight out of ten chimpanzees, in four out of six cynocephali, and in 11 out of 15 macacus monkeys. *No other organisms* were found. They were never found in papules. Spirochætæ are not found normally in monkey's skin. Incidentally it is noteworthy that these authors state that it is impossible to cultivate trypanosomes.

For other experiments on monkeys see Zabolotny,[102] Schaudinn and Hoffmann,[14] Siegel,[2 3 4] Neisser,[103] Thibierge and Ravant,[104] and Kraus and Prantschoff.[45]

Dalous [101] refers to the history of the search for the cause of syphilis. He states that by the use of quartz lenses, with a magnification of from 2500 to 4000 diameters, an undulating membrane can be detected.

Bandi and Simonelli detail several methods of staining spirochæta pallida and describe a simple and rapid method they have elaborated.[92] It somewhat resembles Jenner's method.

Pollio and Fontana [105] found spirochæta pallida in eight out of 19 cases of primary and secondary syphilis. They failed altogether in tertiary syphilis, in other venereal ulcers, herpes progenitalis, acne vulgaris, folliculitis, and aphthous stomatitis.

Risso and Cipollina [106] give details as to nine cases of primary and secondary syphilis. They were successful in demonstrating spirochætæ pallidæ in four out of five buboes and in two mucous plaques where they were few in numbers. They failed in films from circulating blood five times; blood from spleen, once; primary sore, twice; and papule, once. One of the hard chancres was cicatrising and in the other several injections of mercury had been given. Examination of two gummata was negative.

Pascalis [107] concludes that spirochæta pallida is demonstrable in all primary and secondary syphilitic lesions and never in non-syphilitic lesions.

Hübner [48] refers to the history of the discovery and reviews the literature. The paper is interesting as indicating the countries to which the different writers belong and the dates on which they made their discoveries and communications; also, and what is more important, he assigns to each man his share in adding to the knowledge of the subject. He thinks that the tertiary cases in which Rille found spirochæta pallida were more likely very late secondary cases and that Vincent's bacillus fusiformis may be a developmental form of a spirochæta. He concludes that syphilis is a chronic spirillosis which is produced by a spirochæta pathogenic not only for man but also for the old-world monkeys. He attempts to draw analogies between syphilis and recurrent fever, which is also a microbial disease pathogenic for man and also for monkeys. He compares the irido-choroiditis which may occur in this fever with that occurring in syphilis. Of course, the analogy breaks down when one considers, firstly, the chronicity of syphilis and the acuteness of recurrent fever, and, secondly, the mononuclear leucocytosis of syphilis and the polynuclear leucocytosis of recurrent fever.

Veillon and Girard [108] by Levaditi's method [30] found spirochætæ in the roseolar rash. They suggest that the congestion is not toxæmic but the result of a veritable embolism of the terminal capillaries of the papillæ of the corium.

Moncorvo fils [109] has found spirochætæ in congenital

syphilis. He uses hydro-alcoholic solutions of saffranin and violet de dahlia.

Bodin[116] in 37 cases found spirochæta pallida 21 times. He concludes that it is present constantly in untreated developing chancres; in secondary syphilides—papular, papulo-squamous, and ulcerated; and in ano-genital syphilides (condyloma). The organism disappears rapidly under the influence of mercurial treatment, whether general or local, and with local application of antiseptics (all observers do not agree on these points[93 98]). He has never found spirochæta pallida in tertiary lesions. He finds the spirochætæ in constant relation to red blood corpuscles. In conclusion, he thinks that their occurrence so constantly in the lesions cannot be considered merely a coincidence.

Buschke and Fischer[17] have demonstrated clearly the spirochætæ in sections by silver impregnation methods. This was first done by Bertarelli and Volpino.[99] Levaditi modified the procedure according to the method of Ramon y Cajal and got similar results, but not only in the organs of a congenitally syphilitic infant but also in primary sores and secondary papules of an adult, and, in addition, in a primary sore in a monkey. Paschen demonstrated them by the same method and Buschke and Fischer also adopted it. The details of the method are given. Their successes included a condyloma latum, the liver and spleen in two congenital syphilitics, and the kidneys and cutaneous papules in another. The examination of the liver from a man with tertiary syphilis proved negative.

Taylor and Ballenger[93] found spirochætæ pallidæ in two hard chancres and one mucous plaque. Neisser and Baermann[103] had 27 positive and 12 negative results in man. In four out of 12 monkeys they had positive results.

(To be continued.)

THE SPIROCHÆTÆ FOUND IN SYPHILITIC LESIONS.

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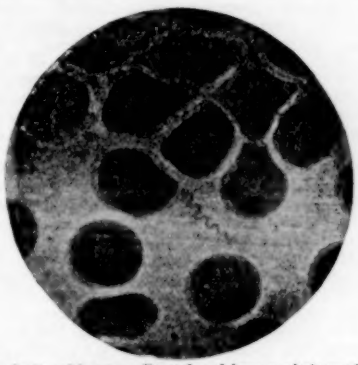
1. *Description.*—In THE LANCET of Sept. 30th, 1905 (p 963), we described a spirillum as seen by us in films taken from syphilitic chancres to be of three varieties, and also stated that we had found the finest of these three varieties in blood films taken after the usual precautions of cleaning the skin with alcohol by puncturing the patient's skin through the site of a squamous syphilide. Having examined 200 cases of venereal sore and syphilitic lesions, we have come to the following conclusions in the description of the various spirillæ: that in true syphilitic chancres there are to be found (1) straight or slightly bent rods in large numbers; (2) undulating organisms very similar to the first except for their attempts to coil; (3) long delicate wavy spiral organisms, sometimes of great length, exactly similar to the spirochæta Obermeieri; (4) organisms similar to the last, but finer as regards thickness; and (5) lastly, the spirochæta pallida, which is characterised by its straightness and corkscrew form, the turns varying from ten to 30 with pointed ends and immeasurably fine. It is meant to draw a distinction between spiral and corkscrew; the former appear curved on the flat in the same plane, while the latter have turns occupying different levels.

Since the examination of fluid from a syphilitic lesion in a hanging drop we can now account for the first three forms, which are the same organism at different stages of its existence, and is the spirochæta refringens, and so named by Schaudinn and Hoffmann. This organism is a highly refractile body, motile, but when resting appearing as a straight rod and when moving assuming a spiral form. The movements are of two kinds—one consisting of a contraction of the organism starting from the centre and gradually drawing in the spirals, which is followed by a relaxation of these spirals, the organism becoming a straight rod again; the other one of locomotion, and as far as could be ascertained the organism did not move very far. Sometimes they were seen anchored by one end to a leucocyte, the free end swaying to and fro.

The spirochæta pallida we have been unable to see in the hanging drop. The varieties of form seen in a film from a syphilitic chancre are thus probably accounted for by the state of rest or activity in which the organism existed at the moment the film was made. The fourth variety mentioned above appears to be an intermediate stage between spirochæta refringens and spirochæta pallida, and in films from syphilitic chancre it is often difficult to draw the line between the very spiral refringens and the corkscrew pallida.



Spirochæta refringens. Reproduced from a photograph by Dr. H. R. D. Spitta. × 1750.

In an article by McWeeney,[1] which was the first notice in English of these organisms, is an illustration showing spirochætæ from a syphilitic lesion none of which resemble the spirochæta pallida as observed by us, and we should describe all of them as spirochæta refringens, as their spirals are all far too separate and not corkscrew. In the *American Journal of the Medical Sciences* of Jan. 19th, 1906, is a figure that illustrates fairly well the difference between the spirochæta refringens and the spirochæta pallida except that the pallida has not sufficient curls. In the *New York and Philadelphia Medical Journal* of Nov. 4th, 1905, is an article by Fanoni, illustrated by micro-photographs of the spirochæta pallida, which, however, do not correspond to our idea of that organism and we look upon them as being examples of the refringens. In the *Australasian Medical Gazette*, in an article by Munro, are two micro-photographs of spirochætæ showing the pointed ends.

2. *Staining.*—Up to the present we have found that Giemsa's modification of Romanowsky's stain gives the best results and always use it. The stain should be diluted with distilled water 1 in 3 in a watch-glass and pipetted on to the film, previously fixed for ten minutes in alcohol. Application of the stain for five minutes is sufficient, though the most certain results are obtained in 15 minutes. Apparently Canada balsam and cedarwood oil do not bleach the stained organism as some observers have suggested, and specimens now six months old appear as deeply stained as when first prepared. Leishman's stain acts well but is not so intense as Giemsa's. The organism stains with carbol-fuchsin, but the fine varieties cannot possibly be distinguished owing to the general intense staining in a scraping from a sore. Some observers have stated that this stain is the best, but we firmly believe they have no idea of what spirochæta pallida is really like. Carbol-thionin stains spirochæta refringens well but we have not detected spirochæta pallida by this method. Generally the spirochæta refringens stains easily and well but spirochæta pallida stains only very slightly, as does the fourth variety. We intend to try Levaditi's silver nitrate method.

3. *Situations in which found.*—All forms are found in the primary lesion but spirochæta refringens is here marked by its numbers in the superficial discharge, while spirochæta pallida is rarely found unless the lesion is actually scraped. In condylomata and mucous tubercles all forms are seen but again spirochæta pallida is chiefly found by expressing serum from the lesion, in which serum it occurs more abundantly than the refringens. The shotty inguinal glands of the early secondary stage when punctured with a hypodermic needle under strict aseptic conditions supply the best examples of spirochæta pallida, and up to the present we have found no form of spirochæta refringens in this position. In the skin,

[1] Brit. Med. Jour., June 10th, 1905.

having selected a spot of the rash somewhere on the trunk and thoroughly cleansed the site with absolute alcohol, blood expressed after puncture with a needle has in numerous instances been found to contain both spirochæta pallida and spirochæta refringens. Other observers who have seen our specimens have confirmed the presence of both forms. No contamination was possible in these cases as the glass slide on which the film was made touched the drop of exuding blood only and never came in contact with the epithelium. Furthermore, the cleansing with absolute alcohol was most carefully carried out. We saw no other organisms or foreign matter in these films, and a search of from one to two hours was frequently necessary. Furthermore, if a spot of the rash be similarly sterilised and a blister raised over it by means of strong ammonia the fluid in the blister will be found to contain numerous spirochætæ pallidæ and up to the present we have seen no spirochæta refringens in this fluid. We have not as yet found the organism in blood films taken from the same patient's finger. The ulcerated throat of the secondary stage, also mucous patches and ulcerations on the lips and commissures of the mouth, show all forms of the organism. Puncture with a hypodermic needle of the tonsil, when enlarged and not necessarily ulcerated, furnishes beautiful specimens of the spirochæta refringens and spirochæta pallida in their finest forms. We have not found it in any of the following tertiary lesions, ulcer of the leg, gumma of the tongue, tertiary ulceration of the hard palate, and late secondary rupial rash; nor have we found any spirochætæ in gonorrhœal warts and non-syphilitic chancres. In the smegma we have seen thread-like organism sometimes of branching and wavy form but very easily distinguished from spirochæta pallida and spirochæta refringens.

4. *Culture.*—All our attempts to grow the organism in broth, agar, or blood serum from blood of patients in which we had previously found the organism have failed.

5. *Theory.*—Our idea is that the spirochæta pallida is the real specific organism of syphilis. That the organisms we have described as spirochæta refringens are polymorphic forms of the same organism. That the spirochæta pallida as we have found it by our constant study of it in all situations in which it has been found tends to be limited to the deeper parts and the internal organs. That the spirochæta refringens occurs only on the surface where the disease is manifested by its external lesions. It is possible that the spirochæta pallida circulates freely in the blood and that as it develops it becomes spirochæta refringens, that this larger organism forms emboli in the capillary circulation, and at the site of these emboli the external lesions of the disease are produced, and the organism undergoes further development for the spread of the disease. In the *Medical Chronicle* for February, 1906, one of us (G. M. O. R.) in recording a number of cases thinks that spirochæta pallida in the primary lesion is diagnostic of syphilis. We should like to add that we have never yet seen spirochæta pallida in the primary lesion without seeing many more refringens and that we regard this organism as diagnostic of spirochæta pallida.

OBSERVATIONS ON THE ANIMAL REACTIONS OF THE SPIROCHÆTA OF THE AFRICAN TICK FEVER.

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A Preliminary Note.

THE strain of spirochætæ used for the following experiments was that discovered by Dr. J. E. Dutton and Dr. J. L. Todd in cases of human tick fever occurring in the Eastern part of the Congo Free State and brought to England by Dr. Todd in the infected monkeys and ticks. Their observations are published in one of the memoirs[1] of the Liverpool School of Tropical Medicine. From one of the monkeys infected by ticks which died showing numerous spirochætæ in the blood sub-inoculations were made intraperitoneally into three rats, two receiving five cubic centimetres and one seven cubic centimetres (Experiment 985). The smallest of the rats, about one and a half months old, showed spirochætæ in the blood at the time of the first examination some 14 hours after inoculation. The number of spirochætæ increased rapidly until, at the time of the rat's death, which occurred suddenly five hours later, the corpuscles were entirely obscured by the innumerable parasites present in the blood. In the case of the other two rats (both full grown) parasites were present in the blood in small numbers 12 hours after inoculation (one to one to three fields: Zeiss oil immersion $\frac{1}{12}$, ocular 4) and were found continuously in large numbers until the rats died, one (985 B) after four days and the other (985 A) after seven days. Sub-inoculations from 985 B were made into two rats, Experiment 990, A getting two cubic centimetres and B one cubic centimetre of blood intraperitoneally. The spirochætæ were found at the time of the first examination (16 hours after inoculation) in large numbers and increased for four days when both rats died, showing innumerable parasites.

Further sub-inoculations from this have been made and show that the incubation period varies between two and six hours in the rat if blood containing numerous spirochætæ be used for the inoculations. The incubation period, however, may be prolonged, as is shown in one case, to nine days or even as long as 21 days in another case. The blood used for this inoculation was derived directly from a monkey infected by means of the bites of infected ticks and which had had a short attack, the spirochætæ being at first present only in small numbers and afterwards absent for two weeks and finally very scarce (one to a preparation) just before death.

The duration of the disease in rats varied between one and 45 days and was increased by the passage of the spirochætæ through several rats. A noticeable feature in those rats in which the disease ran a longer course was the gradual increase in the number of parasites for a few days until in many cases they were uncountable, followed by a corresponding decrease in number to complete disappearance. After a short period of absence the spirochætæ again reappeared and the cycle was repeated three or four times before the animal died, but during the "relapses" the number of parasites never rose so high as in the first attack.

From the pathologico-anatomical point of view the most striking feature was a more or less pronounced enlargement of the spleen (sometimes thrice the normal size). Very frequently this organ contained hæmorrhagic infarcts of varying size, in some cases involving half the spleen. Often the process had proceeded further and small anæmic infarcts were found. The Malpighian bodies were enlarged and greyish in colour. The trabecular system was not pronounced. The liver usually was enlarged and showed hæmorrhages under the capsule and in its substance. Small necrotic areas were found scattered through the liver substance. The bone marrow was very soft and of a pale greyish colour. Petechiæ in the serous membranes were frequent.

Six mice were inoculated intraperitoneally with from 0·2 to 0·5 cubic centimetre of citrated blood containing many spirochætæ. All showed the parasites in the peripheral circulation the following day. Four died during the course of this day showing from one to six spirochætæ per field; two died after 48 hours with numerous parasites in their blood. At the post-mortem examination the spleen was found to be much enlarged in every case.

Six rabbits were inoculated intraperitoneally with large amounts of heavily infected citrated blood (from 10 to 20 cubic centimetres) from monkeys and rats. The animals usually showed parasites in the peripheral blood within from two to three hours afterwards; the number of these increased, as a rule, for the first day and a half (in one case the spirochætæ were so numerous that they could not be counted), then decreased until, after three days, the blood examinations were negative. The temperature of the rabbits rose from 100°–101° to 104°–105° F. within about six hours and fluctuated between 105° and 106·6° until the death of the animals, which occurred in from three to ten days. Marked symptoms of malaise were noticeable shortly after the inoculation and continued until death. Sub-inoculations into rats were positive only in the case of one rabbit

[1] Dutton and Todd: The Nature of Human Tick Fever in the Eastern Part of the Congo Free State, Memoir XVII., Liverpool School of Tropical Medicine, Liverpool, 1905.

which died the third day after inoculation. The post-mortem findings were similar to those found in the rats but usually more marked in severity. The spleen was enlarged and showed hæmorrhagic and anæmic infarcts, the liver showed necrosis, and the bone marrow was very soft, and scattered through the reddish marrow were numerous greyish areas.

Four guinea-pigs were inoculated, also intraperitoneally. Two, inoculated with 15 cubic centimetres of blood showing from 20 to 30 spirochætæ per field, showed parasites in small numbers the following day (1 to 40 fields) and died on the third day showing in the heart blood from one to ten spirochætæ in each microscopical field. The temperature showed a marked rise, reaching 104°. Two, inoculated with five cubic centimetres of infected blood, showed parasites in the peripheral circulation two hours later. The spirochætæ increased in number until the next evening, when from one to two per field were seen and then decreased. After the third day the blood examinations were negative. The temperature fell to normal and both are still alive (one 36 days and the other 27 days after inoculation). In the guinea-pigs which died slight enlargement of the spleen was the only visible finding.

One dog (nine months old, mongrel), Experiment 1018, was inoculated intraperitoneally with 15 cubic centimetres of citrated blood showing numerous spirochætæ. Two hours later parasites were found in the peripheral circulation; they increased in number till the next evening when there were from five to eight in one field of the stained specimen and then decreased. On the fourth day no parasites were found and the blood has since remained free from spirochætæ. Sub inoculations into rats proved negative. Within six hours of the inoculation the temperature rose from 100° to 103·2° and after the third day fell to normal with no subsequent rise.

One pony, Experiment 1019, was inoculated intraperitoneally on Jan. 16th with 17 cubic centimetres of pure heart's blood from a rat showing from five to 20 spirochætæ per field. Seven hours later four spirochætæ were seen in one-half of the film specimen of blood. At the same time the number of leucocytes was increased. The parasites increased in number during the next day until, in the evening, from one spirochæta in two fields to from one to 25 parasites per field were seen. They were still present on the third day but on the fourth day had disappeared and have remained absent since. Corresponding to the appearance of the spirochætæ the temperature rose from 98·6° to 103°, maintained that level for three days, and fell on the fifth day to 99·8°. No rise of temperature has been observed since.

One monkey, an adult Cercopithecus, was inoculated subcutaneously with one cubic centimetre of blood (from 60 to 80 spirochætæ per field). Parasites in small numbers were seen in the blood 24 hours later. A corresponding rise of temperature was noticed. The spirochætæ increased in number and disappeared after three days. At certain intervals the parasites were seen in the peripheral blood, being present for a few days and then disappearing again.

Monkeys showed blood infection after an incubation period of five days after the bites of infected ticks. In monkeys which died from the infection the spleen and liver were found to be the most markedly changed. The spleen was considerably enlarged and contained anæmic infarcts of varying size and extent corresponding to the duration of the disease. In some cases the spleen substance contained very numerous small necrotic areas about a millimetre in diameter. The liver contained hæmorrhagic areas and small necroses. The bone marrow was soft and greyish-red in colour.

From the above experiments it is apparent that we have been able to infect with the spirochæta of African tick fever in addition to monkeys, a horse, a dog, rabbits, guinea-pigs, rats, and mice. The rabbits, rats, mice, and some of the guinea-pigs have succumbed to the infection. Previous observers have not been able, so far as is known up to the present, to infect any animal other than monkeys with the spirochæta Obermeieri. These experiments lead to the conclusion that the spirochæta of the African tick fever differs from the Spirochæta Obermeieri. While the animal reactions are different from those of the Spirochæta Obermeieri, the pathological anatomical lesions are the same as those described in human beings who have succumbed to the infection by Spirochæta Obermeieri.

THE PRESENCE OF THE SPIROCHÆTA PALLIDA IN SYPHILITIC LESIONS.

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As it is still a debateable point whether the spirochæta pallida is a direct cause of syphilis, I thought it advisable to record briefly the following observations made upon cases of primary, secondary, tertiary, and congenital syphilis. In every case the surface of the syphilitic lesion was carefully cleansed and then firm pressure was applied for a short space of time until a small quantity of serum was evacuated. Film preparations which were made from this fluid were stained by my modification of Leishman's stain as published in THE LANCET of August 19th, 1905, p. 522. The spirochætæ by this method stand out quite clearly and definitely and are stained a faint purple colour.

The following is a list of the cases examined by me from July, 1905, until the present time:—

CASE 1.—A child suffering from congenital syphilis. Condylomata were present around the anus. Large numbers of the spirochæta pallida were found to be present.

CASE 2.—A male, aged 30 years, suffering from secondary syphilis. The spirochæta pallida was found to be numerous in film preparations made from the mucous papules in the mouth.

CASE 3.—A female, aged 25 years, suffering from a gummatous ulcer situated on the front of the leg. Film preparations were made from the surface of the ulcer but no spirochætæ were found.

CASE 4.—A male, aged 30 years, suffering from a primary chancre on the glans penis. Typical examples of the spirochæta pallida were obtained from the chancre.

CASE 5.—A female, aged 21 years, suffering from general secondary syphilis. No spirochætæ were obtained either from the skin eruptions or from two cubic centimetres of blood withdrawn from the patient's thumb into a sterile solution of citrate of soda.

CASE 6.—A male, aged 25 years, suffering from a primary chancre on the glans penis. The spirochæta pallida was present in films made from the chancre.

CASE 7.—A female, aged 40 years, suffering from a syphilitic eruption on the face. No spirochætæ were obtained.

CASE 8.—A female, aged 20 years, with a gummatous ulcer on the leg. No spirochætæ were seen.

CASE 9.—A child, aged one year and four months, suffering from condylomata around the anus. Numerous spirochætæ were found to be present.

CASE 10.—A child, aged one year and two months, suffering from congenital syphilis. Large numbers of the spirochæta pallida were obtained from the condylomata around the anus.

CASE 11.—A male, aged 32 years, suffering from a primary chancre on the penis. No spirochætæ were seen.

CASE 12.—A male, aged 40 years, with a gummatous ulcer on the ankle. No spirochætæ were observed.

CASE 13.—A female, suffering from a large suppurating swelling on the left side of the mouth which was incised and from the interior large numbers of the spirochæta pallida were found to be present. This swelling was found to be a *gumma*. The patient also had other evidence of *tertiary syphilis*.

CASE 14.—A child, aged four years, suffering from a primary chancre on the lip. The spirochæta pallida was found to be present.

CASE 15.—A female, aged 30 years, suffering from a softened gumma of the arm. Three cubic centimetres of fluid were withdrawn from the interior of the mass and centrifugalised. Film preparations were made from the deposit but no spirochætæ were found.

CASE 16.—A male, aged 32 years, suffering from secondary syphilis. Numerous spirochætæ, which resembled the spirochæta pallida, were obtained from mucous patches around the mouth and also the spirochæte of Vincent.

CASE 17.—A female, aged 30 years, suffering from a gummatous ulcer of the leg. No spirochætæ were found.

CASE 18.—A male, aged 18 years, suffering from a small

hard chancre on the end of the penis which he had noticed for only a few days. Numerous spirochætæ were found to be present.

CASE 19.—A male, aged 25 years, suffering from *congenital* syphilis, developed a *primary chancre* on the penis. Numerous spirochætæ were seen in film preparations made from the chancre. This interesting case was under the care of Mr. Cuthbert S. Wallace, to whom I was much indebted for permission to examine it.

CASE 20.—A male, aged 18 years, suffering from a primary chancre on the penis. Film preparations were made from the chancre and the spirochæta pallida was found to be present.

Large numbers of other cases of suspected syphilis, soft sores, and other varieties of infection were examined, but in no instance was the spirochæta pallida seen. In several instances a small rounded body was noticed at one of the terminal ends of the spirochæta. This was not observed in all the spirochætæ, but in many cases was a very noticeable feature.

In conclusion, it will be observed that the spirochæta pallida has been seen in six cases of primary syphilis, two cases of secondary syphilis, one case of tertiary syphilis, and three cases of congenital syphilis, but whether these changes are dependent upon the spirochæta pallida requires the necessary proof before it can be accepted.

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A PROBLEM IN DIAGNOSIS.[1]

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I.

THE problem hereunder stated is a good example of the breadth of the field that we doctors have to cultivate, and of the need of taking into consideration, not merely the medical aspect of a case, but the broad facts of the constitution of human nature, in order to interpret rightly the symptoms of disease—at any rate in that department of medicine which deals with disorder of conduct.

I was asked to see a gentleman in a Midland city who was said to be "a chronic, quiet, steady alcoholic," and, on arriving at his house, was received by his wife, the practitioner in charge of the case being temporarily detained elsewhere. The lady seemed to me to have an air of weary resignation, as if she had borne for a long time a burden almost beyond her strength; and from her I gathered that her husband was in bed with a broken leg, having been recently knocked down by an omnibus—an accident not very unlikely to happen to a chronic alcoholic. She made no reference to his drinking habits, and appeared to me cautious and reticent in talking about him, as if she were afraid of making some admission. At any rate, I gained very little information from her in the 20 minutes or so that elapsed before the doctor arrived. From him I learnt that the patient was a man of independent means and of no occupation, a scholar of a celebrated college at Cambridge, and a man of much intelligence and culture. The patient was in the habit of drinking about a bottle of whisky a day, but I gathered that it was not so much his drinking habit, as his curious mode of life, that demanded my attention. He spent the greater part of every day locked up in his own room, and denied himself to everyone. He took, I was told, no interest in anything, and could not be induced to follow any occupation. He had, however—and this seemed contradictory—spent nearly two years in a slum in Birmingham, living in a garret by himself, and devoting himself with energy and zeal, and with no small success, to ameliorating the lives of the slum dwellers. He had continued this life until his health had broken down and he had been obliged to return to his home, his wife and children. It appeared to me difficult to reconcile this life of ardent self sacrifice with the account that he took no interest in anything; and, as there seemed to be no other feature in the case, and as it was not clear to me why my services had been invoked, or on what point my advice was needed, I suggested another interview with the wife.

On putting these questions to her, point blank, her answer was,—"My husband is impossible; he takes no interest in anything." Inquiring as to specific subjects, however, I found that he did in fact interest himself in certain important matters. He interested himself in the education of his children; in the choice of proper schools for them; in the *locale* of the summer holiday; and in other matters; but still "not as another man would." He used to be very social; and now he shunned society altogether. He took no interest in his pecuniary affairs and allowed his brother to manage them for him. On further inquiry, I found that the "impossibility" did not consist in coming home drunk, using violence to his wife, or making scenes with the servants or visitors; nor was he unbearably ill-tempered or irritable. He was never really drunk, although he drank a great deal. There appeared to be nothing very tangible or positive; all that was specifically complained of was his lack of interest. All this was very unenlightening and unsatisfactory; but the "impossibility," whatever its nature, was so real that his wife had once obtained a separation from him and was now contemplating another.

I then visited the patient. I found him in bed, with his leg in splints; a fine, well-made, athletic, healthy-looking man, about 40 years of age. He received me with well-bred ease and courtesy, and answered all my questions with engaging frankness and candour. There was not, either in his appearance or in his manner, or in anything he said or did, anything that in the least suggested unsoundness of mind. "Yes, he had been knocked down by an omnibus; near his own home. Could not say how it happened. Supposed he was mooning along, and not attending to what was going on about him. Was not drunk. No, could not say he was in the habit of mooning along like that, but supposed he sometimes did so. Yes, it was quite true that he had no interest in life; could not account for it, but so it was; had been so for some years. Yes, he spent a good deal of time locked up in that room. What did he do? Went to sleep most of the time (laughing). Yes, he drank,—drank about a bottle of whisky a day. Kept up the practice all the time he was living in the slums. Supposed I might say he had been successful there,—well, very successful, if I liked. No, in spite of that, he could not say he took any interest in the work. Meant to go back to it, though, as soon as he was well enough. Why did he drink? Really couldn't say. No, he had no craving for it. No, it was not a necessity to him. To drown his trouble? Well, perhaps it was. What trouble? Couldn't say he had any particular trouble. *Tedium vitæ?* Well, yes, he supposed so. No, no reason for it, merely he could not interest himself in anything. As a pick-me-up? No, didn't think he drank on that score."

There was nothing very enlightening in this; so I took him over his past life. "Oh! no; he was not always without interests. Used to live in the country, and took great interest in country pursuits. Hunted a good deal; was a magistrate, and chairman of the county council. Gave all this up, and came to this city, where, it was true, he was comparatively nobody. Why? Well, he had mechanical tastes,—that bureau there was full of models, mostly unfinished, and he hoped to get into touch with manufacturers. No, he had not patented anything yet. Could not say the disappointment had afflicted him much, but perhaps it had. Might be the cause of his drinking—couldn't say. Travelled? Yes, he had been to the West Coast of Africa. Yes, the West Coast. Yes, he supposed it *was* odd to choose 'the Bight of Benin, where one comes out where a hundred go in.' No, did not go on business; no, nor exactly for pleasure; no, nor for scientific investigation. What did he do there? Lectured to the blacks. Like it? No, he didn't like it. Came back after a while, tired of it. Then he had been in Manchuria. Yes, during the war. I read in the papers an account of the Yalu, and I said 'That's the place for me.' Did not stay long, however. Was summoned home on urgent business. Then he took to slumming. Carried on a kind of little Toynbee Hall, by himself, and supposed I might say he had been successful. Couldn't say he took much interest in it though. Couldn't take interest in anything. Yes, he was going back as soon as he recovered, and had got a man to take his place while he himself was away."

His vital organs were sound; his digestion was good; his urine was normal. He had been seen by many physicians, but no definite diagnosis appeared to have been made, and

[1] The unessential details of this interesting story have been altered for the obvious reason that the protagonist cannot be recognised through the story.—ED. L.

no definite treatment recommended. The journey to the West Coast of Africa might have been made on the routine advice to take a sea voyage. He talked freely, answered every question without a moment's hesitation, and with a candour and openness that were quite captivating. He laughed lightly at his own infirmity, treating it as a thing inevitable; deplorable indeed, but inevitable and unaccountable, and a thing that must be endured. Subsequently I learnt that the urgent business that brought him home from Manchuria was the suicide of a sister. There was probably, therefore, some insanity "in the family." The tension which was revealed in his wife's expression had no counterpart in his own; and he did not appear much concerned about himself; nor had he the egotistic self-concentration of insanity. He spoke with natural affection of his wife and children, and with regret of the anxiety that his malady caused them.

What was the nature of the case?

II.

In spite of the winning candour of the patient and the absence of any sign of reticence on his part, which forbade me, while I was in his presence, to suppose he was keeping anything back, I had no sooner left the room than the conviction forced itself upon me that there was some feature in the case that had not yet been revealed. The wife's demeanour had suggested this at first, and the patient's condition—his lack of interest in life, the only definite complaint, if definite it could be called, that was made either by his wife or by himself—was so uncalled for and unaccounted for, and was, moreover, so much at variance with his demeanour and lively conversation, that I was driven to suppose that there must be some factor that had been kept concealed. My conviction was so strong, that the first remark I made to Dr. F. in our consultation was, "They are both lying. There is something we do not know."

The case was as different from a case of melancholia as any case could possibly be. The man exhibited no depression whatever. He had none of the aspect or manner of a melancholy man; and he was not self-centred. He could talk at large of other things and other people besides himself. There was no morbid self-consciousness or self-absorption. There was none of the conceited self-depreciation of the melancholic. No, the explanation must be sought in another direction. His whole mind, as revealed in his conversation, was so sound and clear, that I was driven to the conviction that his lack of interest in life depended on a real reason, not an imaginary one, and that this reason he was withholding and concealing under his charming air of candour and *bonhomie*. And this reason was of great efficiency. For why the journey to the West Coast of Africa? Why did the account of the Yalu convince him that Manchuria was "the place for him"? Why the omnibus accident? Was it not clear, was it not at any rate highly likely, that these were three several attempts to end his life? He could, or would, give no reason for visiting the Gold Coast, notoriously one of the most unhealthy places in the world. His resolution that Manchuria was the place for him was made after reading of the horrible slaughter on the Yalu. And his account of the omnibus accident was childishly inadequate. There was, then, not merely a passive lack of interest in life, but an active desire to terminate it, which pointed to some very grave character in that concealed factor which it was my business to discover. It was concealed, therefore it was discreditable. It was worse than drunkenness, for he freely admitted that he drank, and people do not attempt suicide because they are ashamed of being drunkards. He drank, too, not because he had any craving for drink, nor as a pick-me-up, but "to drown his trouble." That half-laughing admission was true. There is many a true word spoken in jest. Such an hypothesis accounted for his solitary habits; for his shunning of society, for his locking himself up in his room to brood over his trouble. If his wife was aware of it, it would account for her tense expression,—she was manifestly on the verge of a breakdown. Evidently it was something which he at least, and probably she also, regarded as very disgraceful. What was it? A drug habit? The notion crossed my mind only to be dismissed. He had not the appearance or manner of the victim of any drug habit known to me; and, although drug habit often leads to suicide, the suicide is involuntary. Moreover, if he were reticent about it, there was no reason why his wife should be reticent about it; and to boot, the hypothesis had already been considered and dismissed by the practitioner in charge of the case. Was it, then, some moral delinquency? Was he, for instance, a fraudulent trustee? This would account for the wife's tension and reticence; but this hypothesis would not hold water; for, in the first place, pecuniary anxiety simulates melancholia very closely, and this man was not in the least like a melancholic; and, in the second, his pecuniary affairs were in the hands of his brother. There remained, it seemed, but one alternative,—there was some sexual anomaly. Was he a sexual pervert? Was the slumming experience a blind, and a means of obtaining opportunity for the indulgence in unnatural vice? This would be consistent with the shunning of reputable society, and with the apprehension and anxiety of the wife; this would render him "impossible," indeed; but then there were the attempts at suicide. It might seem that the knowledge, that a man is addicted to such repulsive and reprobate vice, would excite in him such self-contempt and self-aversion as to drive him to seek oblivion in suicide; but this is not so in experience. Persons, who pursue these practices, pursue them with avidity, and are not disturbed or deterred by any vivid sense of shame. They seldom hesitate to admit the practice. They are, it is true, addicted to low associates, and they do shun their social equals, but they are never, in my experience, suicidal. Moreover, such persons usually present a recognisable *facies*, often of an epicene character, which gives the observer reason to suspect their proclivity. The author of *De Profundis* was recognisable, and recognised, by his appearance alone, as likely to be addicted to these practices, long before his trial put the fact beyond question. There was no such feature in the case under consideration; and, even when my suspicions were aroused, I could not but regard the explanation as improbable, having regard to my observation of the man.

Rejecting this, there seemed to be but one possible explanation remaining. He must be impotent; or, what is the same thing for the purpose in view, convinced that he was impotent. On consideration, this hypothesis explained everything. It accounted for the secretiveness, the mystery, the loss of interest in life, the drinking to drown trouble, and the attempts at suicide. It seems unreasonable that it should be so, but it is an undoubted fact that nothing is so provocative of self-contempt and self abasement, of shame and humiliation, as a man's belief in his own impotence. Such a belief would account for the shunning of society; for the solitary days, locked in his room, and brooding over his trouble; for the craving for oblivion in drink; and for the attempts at suicide. Moreover, it would account for the peculiarity, otherwise inexplicable, the devotion to slumming. The deprivation or the renunciation of sexual life is always closely connected with the display of self-sacrifice and self-renunciation in other respects. We see the combination in the monk and the nun; in the celibate priest who submits in all things to the authority of his Church; in the asceticism and self-mortification, in the not infrequent suicide, of the disappointed in love; in their retirement from the world to a life of seclusion and austerity in monastery and convent. Loss of interest in life and retreat from society would be the natural consequences of impotence in one who took the deprivation much to heart. And this hypothesis was consistent with the demeanour of the wife. It was true that there were children, but the youngest was seven years old. He could not always have been impotent, therefore, but he might be so now. It is true that he was fairly animated, and was certainly not melancholy during our interview, but so is many a man gay and *insouciant* on his way to execution.

I felt confident that here, at last, I had a clue to the mystery. The patient was taxed with his infirmity—he burst into tears as he admitted it. I asked his wife if it was so,—and obtained her corroboration. I may add that he admitted that his expeditions abroad were made with suicidal intent.

Wimpole-street, W.

EXHIBITION OF H.M.S. "BLACK PRINCE."—£1100 have been realised by the exhibition of this ship which, by the kindness of the Thames Ironworks Shipbuilding and Engineering Company, was recently on view for the benefit of the Seamen's Hospital Society and the Poplar and West Ham Hospitals. During the three afternoons when the vessel was open to inspection it was visited by over 21,000 persons.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF BILHARZIOSIS OF THE VERMIFORM APPENDIX.

BY G. LYDSTON CRIMP, M.B., B.C. CANTAB.,
LATE DEPUTY FOR PROFESSOR OF PATHOLOGY, GOVERNMENT MEDICAL SCHOOL, CAIRO.

IN THE LANCET of Feb. 10th, p. 366, there appeared an article by Dr. J. Burfield and Mr. E. H. Shaw describing a case of the above disease. Of the presence of bilharzia ova there can be no doubt from Mr. Shaw's description but the deductions drawn therefrom are open to the strongest criticism. The writers first quote Dr. F. M. Sandwith's popularised compilation on the subject in favour of infection of man taking place through drinking water, and then end up by assuming a direct local infection of the gluteal sinus, which two ideas are in diametrical opposition to one another and yet are probably—nay, almost certainly—both incorrect. A considerable body of evidence, which would be out of place in this short note, has been adduced to show that the mouth is *not* the channel of infection (incidentally one might note that the myracidium does *not* hatch out "in about half an hour after the ovum is voided in the urine," unless the urine be considerably diluted with pure water—the necessary factor in the hatching process).

The suggestion of immediate infection of any locality, whether skin, urethra, anus, vulva, &c., is absolutely without a shred of support, either pathological or helminthological. Note that I say immediate. This does not deny the possibility of infection by these channels but it does deny the reference of any local lesion to the immediate influence of local attack. To make myself clearer, Dr. Looss[1] shows evidence, conclusive to a helminthologist, that direct metamorphosis of the myracidium into the adult worm *in situ* cannot occur; that the existence of an intermediate generation is predicated by the presence of typical germinal masses (Keimballen) in the posterior part of the body cavity of the myracidium; and that the only question is where the intermediate generation is to be sought. Other evidence goes to show that the liver provides the necessary home. From there the young adults, male and female, pass into the portal veins (? also elsewhere), mature, copulate, and work their way into various regions (among which the rectum and urogenital organs predominate), there to lay their eggs *which are the efficient cause of the local lesions of bilharziosis.*

Dr. Burfield and Mr. Shaw would explain the symptoms in the case quoted by the supposition of a localised bilharzial infection of an open appendicular sinus. This has, I think, been rendered inadmissible; but why not assume that the patient's original abscess was due to the ravages of bilharzia? In the *Journal of Tropical Medicine* of March 1st, 1905, I drew attention to the not infrequent occurrence of appendicular infection and published a photograph of an appendix so affected. This note has presumably escaped the attention of the writers. On numerous occasions have I seen in life and on the post-mortem table sinuses tracking far and wide from visceral bilharzial lesions—one particularly that I can call to mind having begun extraperitoneally in the cavum Retzii from ulceration through the bladder wall and having tracked up submurally to the umbilicus where it communicated with the exterior.

Cancer Hospital, Fulham-road, S.W.

A CASE OF VAGINAL CYSTS.

BY WILLIAM P. GOWLAND, M.B., B.S. LOND.,
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THE following case seems worthy of record in view of Dr. H. Macnaughton Jones's interesting paper which appeared in THE LANCET of Feb. 24th, p. 513.

The patient, who was a multipara, 38 years of age, complained of "bearing-down" sensations which on examination were found to be due to two vaginal cysts. One of these was as large as a hen's egg and situated about half way up on the left postero-lateral aspect of the vagina, while the second one was of about the size of a grape and situated opposite the first one on the right side. The patient stated that five years ago she had a very difficult labour, the child being large, and she assigned the commencement of her symptoms to this date. She had been confined three times since and mentioned that her medical man attributed a difficult delivery the last time to the presence of the cysts. I thought that the cysts might therefore have possibly arisen by effusion of blood or serum into the connective tissue of the vagina during labour (one form of the accidental vaginal cyst of Rutherfoord). I dissected both cysts out with difficulty and incompletely. The contents were gelatinous. Portions of the cyst wall were sent to the Clinical Research Association and Mr. J. H. Targett reported as follows: "Both cysts are of the same structure. On one surface—portion of stratified squamous epithelium of vagina. On other surface—single layer of columnar epithelium of varying height (probably due to pressure within cyst) and in places distinctly ciliated. Between the two fibro-muscular tissue which, in the case of the larger cyst, is considerable in amount. The cysts are probably of Gärtnerian origin."

The following seem to me to be the points of interest in the case: (1) the history leading to the suspicion that an "accidental cyst" was present though the subsequent microscopical examination disproved this; (2) the character of the epithelial lining of the cysts, it being columnar and in part ciliated; (3) the symmetrical position of the cysts pointing to origin from a bilateral structure; and (4) the possibility of these cysts causing difficulty in labour.

I am indebted to Dr. W. A. Carline, senior surgeon to the Lincoln County Hospital, for permission to publish the case.

[1] Handbuch der Tropenkrankheiten.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Annual General Meeting.—Election of Officers.—President's Address.

THE annual general meeting of this society was held on March 1st, Sir RICHARD DOUGLAS POWELL, the President, being in the chair.

The report of the council, together with the honorary treasurers' audited accounts, was presented and adopted. A ballot for the election of officers and council for the ensuing year took place and the following were elected:—President: Mr. J. Warrington Haward. Vice-Presidents: Dr. Thomas Buzzard, Dr. Joseph Frank Payne, Mr. Herbert William Page, and Mr. W. Harrison Cripps. Honorary treasurers: Sir William Selby Church, Bart., and Mr. Alfred Pearce Gould. Honorary secretaries: Dr. Howard Henry Tooth and Mr. Stephen Paget. Honorary librarians: Dr. Norman Moore and Mr. Rickman John Godlee. Members of Council: Dr. Theodore Dyke Acland, Dr. Edwin Clifford Beale, Dr. Sidney H. C. Martin, Dr. George Ogilvie, Dr. William Pasteur, Mr. John Bland-Sutton, Mr. Andrew Clark, Mr. Clinton Thomas Dent, Mr. Walter H. H. Jessop, and Dr. Henry Roxburgh Fuller.

The retiring PRESIDENT in his annual address said: In the year that has gone by we have been busy looking back upon the achievements of the past century, looking forward to possible developments in the future, and doing the work that has come to hand. We have suffered the loss of ten Fellows by death: Mr. E. T. Truman, Dr. Eustace Talbot, Mr. F. J. Gant, Dr. J. W. Ogle, Mr. Christopher Heath, Mr. J. A. Kingdon, Dr. William Ogle, Dr. William O'Neill, Mr. P. R. Cresswell, and Sir J. Burdon Sanderson, and of two honorary Fellows, Professor A. Kölliker and Professor H. Nothnagel, and how great that loss has been I have endeavoured to show in the brief and too imperfect references to them that I have made. The past centenary year, however, will ever be memorable for the election into the Honorary Fellowship of the Society of H.R.H. the Prince of

Wales and we shall always look back with grateful appreciation to the honour conferred upon us by His Royal Highness's presence at our banquet and by the warm recognition of the century's work of the society in the cause of medicine and for the welfare of the public, which graced the eloquent and sympathetic speech with which he favoured us on that occasion. We have also in the past year received an encouraging accession of new Fellows. The financial position of the society is good and the generous contributions to the Centenary Celebration Fund have enabled our treasury to bear all the expenses of the year and yet to contribute more largely than usual to the library and to the repayment of debentures. I would take this opportunity to remind the Fellows that however materially well-to-do this society may be or may become its real prosperity must depend upon the number and *esprit* of its Fellows and that it is by the continual accession of new Fellows to replace those that are gone that its intellectual wealth, as well as its material prosperity, are maintained. It is within the power of each Fellow to bring the claims and advantages of the society under the notice of colleagues and friends and to bring them into the Fellowship. It is very gratifying to the council to be able to record such a complete success for our centenary celebration in May last and I beg here formally but very sincerely to express the indebtedness of the society to the various organisation subcommittees of the council, to the honorary secretaries, to the secretary and his staff of officials, including Miss Williamson, for their zeal and industry, which made everything pass off so well. One of our honorary librarians, Mr. Godlee, took great interest and pains in securing through his friend Mr. Ashbee a very handsome design for the honorary diplomas and we have to thank Mr. Partridge, the son of a former President of the Society, for a very artistic design for the banquet table cards. I must also again express our thanks to our honorary librarian, Dr. Norman Moore, and to our honorary secretary, Mr. Paget, for the production of the centenary volume, recording the doings of our society within the 100 years upon which the festival celebration was based and justified. The ordinary work of the society has included many interesting and valuable papers fully on a level with those of former years. It may, I think, be affirmed that the discussion on appendicitis brought together a mass of statistical information and a volume of well-matured experience that could scarcely have been at the command of any society but this, and that it has settled for many years to come the lines both of medical and surgical procedure with regard to the most critical aspects of appendix disease. Another series of papers, very amply illustrated, brought fully before the profession the question of a rational and scientific method upon which the treatment of tuberculosis by tuberculin should be based. It was contended that the tuberculin treatment of tuberculosis should be effected upon lines in common with those upon which the treatment of certain other diseases that have their origin in the actions of specific organisms were founded—viz., measures calculated to increase the bactericidal influence of the blood serum upon such organisms and thus permitting of greater phagocytic activity on the part of the white corpuscles. The treatment of tuberculosis by tuberculin originated by Koch was so far an empiricism that it was in advance of any ordered reasonings, it was a speculative treatment although based, it is true, upon the promptings of his great discovery. The treatment now again initiated necessarily awaits further experience in order that its limitations may be better defined, its coördination with other measures of treatment, surgical and medical, more clearly recognised, and, above all, in order that a more easily recognisable clinical index may be attained which will enable the treatment to be safely carried out without constant and expensive, and often unattainable, reference to the bacteriological expert. We were also favoured in the Marshall Hall prize essay, which was communicated to us at a special meeting in the Centenary week, with a remarkable output of prolonged, patient, and I may truly say, self-sacrificing work—for much of the vivisectional experiments was made upon the author himself—which has advanced our knowledge in an important manner, especially with regard to the phases of loss and restoration of sensation in cases of nerve injury and repair. In working power, then, as in finance, the society may be truly said to be in a sound condition. With regard to the question which I raised in my first annual address and which was so cordially and generously accepted for consideration by this society and by many others—viz., that of a possible union of the central London medical societies for greater economy and more comprehensive and efficient work, I may say that the scheme is still in progress, very many committee meetings have been held under the presidentship of Sir William Church, and much has been done towards the attainment of a working plan of amalgamation. The negotiations have been delicate and sometimes difficult, but in the existence of what I believe to be a conviction amongst the members of the different societies, that in union we shall find strength and greater efficiency in forwarding the interests of medical science, and with the impetus of will and I hope goodwill power amongst them, I believe that the union will be triumphantly effected. It is quite clear that before any actual coalition of the societies in agreement takes place very careful estimates based on exact valuations of the assets of each society must be made in order to place the new society on a sound financial foundation. The up-keep of the new society must depend upon the subscriptions of Fellows and Members and with a large Fellowship there can be no anxiety on this head. The income-producing property must be estimated on realisable assets only and probably reserved as a fund for special scientific requirements. The market value of books and museums can scarcely enter into such estimates, yet nevertheless the library, which should be the best in the world, must be a chief attraction and the most really valuable asset of such a society. I have no misgivings myself as to the possibility of bringing about this much-needed union. Apart, however, from any amalgamation scheme, and, indeed, perhaps as a part of any such scheme, my experience as a past secretary and as now, alas, also a past President of this society, leads me to say that I think the society needs some expansion and development in certain directions which were indeed contemplated at its foundation. Its meetings have long been too exclusively of a formal kind. Undoubtedly the two great objects of the society are a perfect medical and scientific library and the production of first-rate papers and discussions which its resources enable it to publish and to illustrate with every necessary fulness. But the society did not originally contemplate that every meeting should, so to speak, be a full-dress one. It had in view instructive conversational meetings over an interesting case, a new discovery, or a new method of treatment, and I venture to think that if an evening were sometimes devoted to the conversational consideration of a few interesting cases, specimens, or demonstrations of objects of medical interest, such as one sees to be the nucleus of a group of busy brains at odd corners at a Royal Society soirée, it would not be mis-spent, and that a more formal paper read at some subsequent meeting on a subject thus less formally ventilated would meet with more sympathetic and full consideration. The organisation of these less formal gatherings would, no doubt, involve some extra work, skill, and enthusiasm on the part of the honorary secretaries but those qualities may be safely reckoned upon and have never been found wanting. There used in my day at the pathological and clinical societies to be a clique of working pathologists and clinicians who met together at one another's houses after the formal meetings of the societies and discussed informally the events of the evening. They were interesting, entertaining, often lively, meetings and, I think, useful. Certain lessons of the evening were sometimes inculcated with greater emphasis than could be done at a public gathering. I remember that the editors of some of the journals were conspicuous members and although they left their note-books behind I have no doubt they acquired some useful information of the trend of medical thought at those informal gatherings. I think there might be found within our society's premises a room for post-medico-chirurgical gatherings of this kind, consisting of members qualified by a certain standard of Fellowship and work at the society. I believe such an inner or outer circle properly organised on liberal lines would attract Fellows and stimulate them to good work in the society. And the same remark would apply to any new society that might be founded upon its association with other societies. It only remains for me now to say how keenly I have appreciated the friendly and courteous support I have always received from the council and Fellows of the society during the somewhat difficult year of office that I have now completed. I shall always treasure the memory of the presidentship as one of my proudest attainments as well as of my most pleasant experiences.

PATHOLOGICAL SOCIETY OF LONDON.

The Bearing of Recent Research upon Some Problems of Urinary Excretion.

A MEETING of this society was held on March 6th, Dr. F. G. HOPKINS, Vice-President, being in the chair.

Dr. HOPKINS read a paper on the Bearing of Recent Research upon Some Problems of Urinary Excretion. He dealt with two main considerations: the progress in our knowledge as to the origin of well-known excretives and the possible practical importance of chemical anomalies in pathology. He first dwelt upon the clearness which had been added to our views concerning the source of certain urinary products, now that, owing to our increased knowledge of proteids, we could trace these substances directly to precursors in the proteid molecule. This was illustrated, *inter alia*, by the cases first of cystine, which was itself present in the proteid, then of homogentisinic acid (in alkaptonuria) which could be traced as arising by known steps from tyrosine and phenyl-alanine, and further of indoxyl which was derived from tryptophane. No longer were these looked upon as arising by complicated abnormal syntheses, nor—in the case of the first two—as indicating the intervention of extraneous agents such as bacteria. Homogentisinic acid and cystine were normal intermediate products of metabolism, excreted because of a "chemical malformation" in the subject who excreted them. The malformation was one of deficiency and in the case of alkaptonuria they had now very precise information that what was lacking was a specific oxidising mechanism which normally split the benzene ring of homogentisinic acid. Consideration of melanine pigments was naturally suggested by the subject of alkaptonuria and its occasional association with ochronosis. Dr. Hopkins showed that the increasing evidence for the direct origin of melanines from the aromatic groups in proteid had added interest to the study of pigmentation. Purin metabolism was next briefly dealt with, chiefly from the point of view of showing that, in the breakdown of tissue nucleins, guanine and adenine were primary products which had first to be converted into xanthine and hypoxanthine by means of special ferments before the oxidative mechanism of the body could deal with them. This was at any rate true in the case of adenine and the point was made that, as the base was decidedly toxic if the chemical mechanism which dealt with it were to fail, definite symptoms might be produced, although the product concerned was, in a sense, a physiological one. Turning to his second thesis, Dr. Hopkins endeavoured to show that the occurrence of chemical abnormalities might constitute a not altogether unimportant chapter in practical pathology. Although any individual type of variation from the normal was probably a recessive character and must remain rare, yet the multiplicity of chemical factors in the body was very great and the material basis for diverse variations was large. It did not follow—witness the case of adenine—that all arrested intermediate products must necessarily prove innocuous and, moreover, deficiencies in chemical organisation might affect construction as well as breakdown. Since, too, such substances as adrenalin were absolutely necessary for the maintenance of the body, and since they must arise by definite chemical stages from definite precursors, there was on this side of metabolism full room for variations in the direction of deficiency. Although chemical abnormalities were, in general, as in the case of alkaptonuria, congenital, yet it was interesting to find that symptoms, even in alkaptonuria, might be latent until late in life. It was not difficult to understand why chemical abnormalities were recognised with difficulty. It was illuminating to remember that failure on the part of an organ to develop any one of its normal chemical factors might be equivalent in some of its effects to degeneration of the organ itself. He desired to emphasise the point that the phenomena in the recognised cases of chemical deficiency made it no longer necessary to think of such deficiency in a vague vitalistic way; what was lacking might be some definite chemical mechanism on which, metaphorically, the finger might be placed. In his concluding remarks he pointed out that the ferments of the urine, which had been lately shown not to be autolytic enzymes, but to owe their origin to the digestive glands, had this much importance to pathologists, that they proved the kidney permeable to a class of substances to which toxins and antitoxins stood near. A renal influence in removal of toxin on the one hand or of antitoxin on the other was not to be ignored.

LIVERPOOL MEDICAL INSTITUTION.

Exhibition of Clinical Cases.—Appendicitis.

A MEETING of this society was held on March 1st, Mr. FRANK T. PAUL, the President, being in the chair.

Dr. T. R. BRADSHAW showed, amongst several other cases of interest: (1) a case of Paralysis of both Sixth Nerves in a young woman from whose neck cancerous glands had been removed; (2) Congenital Heart Disease with cyanosis, drumstick fingers, and systolic murmur at the base; and (3) Disseminated Sclerosis in a lad aged 19 years, after pneumonia. The symptoms were ataxy of the legs and arms, brisk reflexes, and scanning speech, but no nystagmus.

Dr. A. G. GULLAN showed a man, aged 27 years with Complete Transposition of the Viscera. The man enjoyed excellent health and had been through the South African War.

Dr. GULLAN also showed two cases of Exophthalmic Goitre which had improved under the treatment of rodagen in drachm doses.

Dr. NATHAN RAW showed cases of Mitral, Pulmonary, and Aortic Stenosis respectively; two cases of Myxœdema and one of Arsenical Neuritis.

The PRESIDENT exhibited a patient upon whom he had performed Orchidopexy for Cryptorchidism.

Dr. G. STOPFORD TAYLOR exhibited a case of Mycosis Fungoides in which all evidence of the disease, except some pigmentation, had disappeared after treatment by the x rays. Fifteen exposures of ten minutes' duration each equal to a Holzknecht's unit were administered, two exposures being given each week. The diagnosis had been confirmed by a microscopic section of the growth.

Dr. F. H. BARENDT exhibited a man, aged 22 years, with Seborrhœa Corporis caused by wearing a vest continuously night and day for a fortnight in spite of free perspiration during work. The eruption consisted of discrete macules, salmon coloured, marginate and slightly scaly, scattered over, and limited to the anterior and posterior aspects of, the trunk.

Dr. LESLIE ROBERTS showed cases of Lupus, Keloid following Syphilis, and Follicular Epithelioma.

Dr. A. BERNARD showed a case of Digital Primary Syphilis with Secondary Manifestations.

Dr. K. A. GROSSMANN showed a case of Albinismus confined to the Iris, the structures of which with the exception of the uveal layer were free from pigment. The pupils were both excentric, indicating congenital displacement of the lenses, which caused slight horizontal astigmatism. Horizontal nystagmus was present and in the left eye capsular cataract. The hair and fundus oculi were pigmented throughout.

Mr. R. J. HAMILTON showed: 1. A case of Ptosis and Paresis of the External Rectus in the Right Eye and Paresis of the Left Inferior Rectus. 2. Persistent Increased Tension in the Eye of a girl aged 18 years, after removal of traumatic cataract. Iridectomy had failed to give more than temporary relief.

The PRESIDENT read a paper on Appendicitis in which he discussed the relative success of early and "interval" operations. Everyone agreed in operating at once in cases which suppurated or in which general peritonitis supervened, but apart from these complications "interval" operation, as recommended by Sir Frederick Treves, was the goal to aim at. Statistics were wanting as to the mortality from appendicitis when the early operation was uniformly undertaken, but from what he had seen of it he was sure that the death-rate was much higher than when uncomplicated appendicitis was properly treated through the attack and appendectomy done on recovery. In any statistics it was necessary to consider the mortality as a whole. Since his previous paper, five years ago, he had operated on 252 cases, including 43 abscess and 17 peritonitis cases. The mortality was 6·3 per cent. During the last year there had been considerable improvement. For 72 cases, including 16 abscess and four peritonitis cases, the mortality was 2·7 per cent. For "interval" operation there should be practically no loss of life and very little in abscess cases if taken early and the appendix *not* removed.

In general peritonitis the results were improving but the mortality was still high. Early operation might save a few cases from fatal complications but was itself a cause of greater loss of life. For those who adopted the view that early operation was the best there should be no half measures. The essence of the practice was immediate operation in every case. It was a comfortable doctrine and saved the surgeon from all anxiety as to the right time to operate but he could not subscribe to it as he felt sure it was not the best thing for the patient.—Mr. R. W. MURRAY spoke in favour of early operative interference. In an urgent case the operation should be performed at once. If the symptoms were of a less urgent nature the operation might be postponed for a few days. The dangers of the operation were known to be slight and were for the most part avoidable; whereas the dangers of delay were unknown and unavoidable. He considered the administration of morphine unadvisable, for the drug tended to impair the movements of the intestines, and the great omentum, which had been proved to contain a host of phagocytes, depended upon the intestines for its locomotion and might thus be prevented from arriving at the seat of the disturbance and so from localising the trouble.—Mr. E. M. STOCKDALE thought that the improvement in the statistics of general peritonitis might be attributed to the fact that cases were nowadays sent earlier to the surgeon so that more cases might be classed as "diffuse" rather than "general" peritonitis. He related the case of a youth, aged 20 years, who died within ten hours of the bursting of an abscess in connexion with the appendix, the symptoms of general septic absorption being so severe as to preclude operation.—Mr. G. P. NEWBOLT considered that the Trendelenburg position, with the patient lying on the left side, prevented the small intestines and omentum from getting into the way and much facilitated the operation. He drew attention to the occurrence of bladder symptoms in the early stages of the attack and remarked that it was often the best plan to separate the appendix from the base to the apex in troublesome cases. He favoured the "interval" operation and did not remove the appendix in cases of suppuration unless it lay exposed in the cavity of the abscess.—Dr. W. BLAIR BELL would remove every appendix within 24 hours of the onset of an attack if the case was seen in time. There was no more danger in this proceeding than in the "interval" operation, while it was the means of saving cases which might go from bad to worse; further, it did away with the possibility of abscess formation, fæcal fistula, hernia, &c. Concerning the after-treatment, he thought that the use of frequent saline injections per rectum added to the patient's comfort and prevented various thromboses. He was much impressed with Professor A. E. Wright's vaccine treatment as a means of raising the patient's protective power in bad septic cases, cases in which the skill of the surgeon was quite secondary to the patient's own immunising powers.—Mr. T. C. LITLER JONES, while congratulating the President on the gratifying results which he obtained by the "interval" operation, pointed out that the whole difficulty lay in diagnosing those cases which would go on to suppuration or general peritonitis. At all times he relied on the pulse for guidance and made a point of examining the rectum in every case. He also drew attention to a discharge of mucus which preceded perforation of the bowel. Unless the peritoneal fluid was of that abundant, thin, easily diffusible character which had already probably infected every part of the peritoneum he did not wash out but relied on careful swabbing. He also advised that where possible the abdomen should be explored for other lesions. In a case just convalescent the youth was operated on for general peritonitis and free gas, but Meckel's diverticulum presented in the wound; this having been invaginated and sutured, the appendix containing pus and an inch-long bristle was removed. Further exploration revealed a large perforated duodenal ulcer, the pus from which was kept within limits by adhesions to the under surfaces of the liver, the diaphragm, the gall-bladder, and the omentum. The pus was swabbed out, the abdomen was closed, and the patient made an uninterrupted recovery.—Dr. GULLAN said that the great majority of cases of acute appendicitis treated by absolute rest, starvation diet, and rectal enemata recovered; he believed small doses of morphine were of great benefit provided the temperature and local conditions were closely watched. He never gave purgatives. He agreed with the President that the interval was the best time for operation on recurrent cases.—Sir JAMES BARR, Mr. DAMER HARRISSON, Captain DOUGLAS, Dr. J. HILL ABRAM, Dr. E. T. DAVIES, Dr. H. HARVEY, Mr. A. E. DAVIS, Mr. G. WESTBY, and Dr. R. J. M. BUCHANAN also took part in the discussion.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The provincial quarterly meeting of this association was held on Feb. 23rd at the West Riding Asylum, Wakefield, Yorks, through the kindness and courtesy of the director, Mr. W. Bevan Lewis, Dr. T. Outterson Wood, the President, being in the chair.—The President read a paper upon the State Registration of Mental Nurses and referred to the findings of the special committee appointed by the late Government, which recommended a special register for mental nurses and that the Medico-Psychological Association should be one of the authorities concerned in dealing with the register. He urged support for the Bill now being promoted by the Royal British Nurses' Association.—The Bishop of Wakefield addressed the meeting and expressed his warm advocacy for anything which might raise the status of asylum-trained nurses. He spoke with personal knowledge of their duties and of the tact and sympathy required in dealing with mental cases. He considered the vocation of the nurse to be a high and exalted one and he referred to the great progress in nursing sickness and disease which had been made within the last 20 years. He was himself greatly concerned with the problem of the prevention of disease and with raising the efficiency of the great masses of the people and it was a source of considerable satisfaction when eventually, as was too often the case, the necessity occurred for patients to be treated in our asylums to find so much devotion, tact, kindness, and sympathy. The Bishop further referred to the great progress and improvement made in the treatment of the insane within his own memory.—Dr. W. Harding (Northampton) also spoke and the treasurer, Mr. H. F. Hayes Newington, proposed a hearty vote of thanks to the President for his address and proposed that his paper should be handed over to a special committee of the Medico-Psychological Association now sitting to deal with nursing registration.—Mr. Bevan Lewis then read a paper entitled "Alcoholism, Crime, and Insanity," in which he referred to his early investigations in 1876 and 1880 upon thermogenesis as affected by certain potent alkaloids, as also by chloral, caffeine, and alcohol. Alcohol, he said, led to an initial stage of increased blood pressure with decreased heat formation, followed by a stage of decreased blood pressure together with increased thermogenesis, as well as inordinate heat discharge. Chloral acted similarly and in the second stage was accompanied by the enormous evolution of from 7 to 11 heat units per gramme of body-weight. The antagonism of caffeine in this respect was illustrated by the fact that heat formation was stimulated from the first but its operation favoured heat retention, not dissipation. The impairment of muscular sense under the agency of alcohol was then discussed and a notable similarity in this operation indicated in the three diseases, chronic alcoholism, general paralysis, and dementia præcox. The seat of muscular sense discrimination was identified with the cortex of the motor area as mapped out on histological data by the author and by Dr. Alfred Campbell, together with the adjacent fringe of cortex called by him the "transition realm" and which corresponds to Dr. Campbell's intermediate pre-central and intermediate post-central type. This site is peculiarly liable to early implication in the three affections alluded to at a period when general sensibility and thermal and painful impressions are unimpaired. Allusion was then made to the geographical incidence of alcoholism and it was shown by tabulated statistics that the admixture of a maritime with a mining and manufacturing class was fatal to the sobriety of the community; that, in fact, inland and *agricultural* communities were the least inebriate but had the highest ratio of pauperism and of insanity; that inland and maritime *mining* and *manufacturing* communities were the most inebriate but had the lowest ratio of pauperism and insanity; whilst maritime *mining* and *manufacturing* communities, above all others, were the most intemperate and revealed the lowest ratios of pauperism and insanity. A dissociation between alcoholism and insanity was thus indicated, whilst the latter was allied with pauperism, want, anxiety, and other moral factors. He expressed his belief that alcoholism was not, in the true sense of the word, *inheritable* but indicated the neurotic features which favoured its operation and dwelt on its

prejudicial action on the germ plasm and ovum as evolving convulsive forms of mental diseases—epilepsy, chorea, hysteria, &c.—and also the degenerate forms of idiocy, imbecility, and the criminal type, as emphasised in the offspring of an alcoholic parentage. He expressed his adherence to the doctrine of Weismann that acquired characters are not transmitted.—Dr. C. A. Mercier, Mr. Newington, and Dr. Robert Jones also spoke.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held on March 2nd, Mr. W. Campbell M'Donnell, the President, being in the chair.—Mr. Raymond Johnson read a paper on Some Surgical Aspects of Glycosuria. The subject was considered under three headings: first, the occurrence of temporary glycosuria after injuries and in the course of certain surgical affections, especially of an acute inflammatory nature; secondly, the propriety of the performance of surgical operations upon the subjects of glycosuria; and thirdly, the surgical complications of diabetes. In connexion with the various conditions in which a temporary glycosuria had occasionally been met with it was insisted that confirmatory evidence, especially the fermentation test, must always be obtained before it was assumed that a reducing substance present in the urine was really sugar. A case was recorded in which, after a few days' illness, a young man became rapidly comatose. Sugar in considerable quantity was found in the urine and the case was at first regarded as one of diabetic coma. Further examination, however, threw doubt on the diagnosis and elicited the existence of chronic otorrhœa. The glycosuria was merely a symptom of diffuse meningitis from which the patient died on the day after the onset of the coma. Acute diabetes must be regarded as an absolute contra-indication to the performance of any operation unless of urgent necessity. In all diabetics an operation involved a risk of the supervention of coma, and unless the wound could be kept absolutely aseptic severe forms of diffuse inflammation were likely to occur. Cases were quoted illustrating the behaviour of aseptic and septic wounds in diabetic subjects. The possibility of the occurrence of these complications had to be considered seriously even when the percentage of sugar was low and the patient's general condition favourable. In speaking of the various surgical complications of diabetes it was pointed out that for the most part they did not present distinctive features; thus the carbuncle of a diabetic presented usually nothing characteristic, and as the patient in such cases often showed no appearance of serious ill-health the importance of a systematic examination of the urine could not be exaggerated. Diabetic gangrene also was not to be regarded as a specific form; it resulted from causes capable of resulting in gangrene apart from the presence of glycosuria; the diabetes favoured but did not cause the occurrence of gangrene. It had long been recognised that many cases of diabetic gangrene, especially of the lower extremity, were due to the chronic arterial disease to which diabetic subjects were liable and experience had shown that a good result might follow high amputation in such circumstances. Gangrene of inflammatory origin presented itself in the most different degrees of severity. A most severe form might follow diffuse cellulitis, but in its least severe form the gangrene might be limited to the separation of small cutaneous sloughs, leaving a granulating surface which might heal favourably under a suitable diet and the administration of opium or codeine. Finally, reference was made to the perforating ulcer of diabetes and to some other affections of the skin occasionally associated with the disease.—Dr. H. P. Miller showed a man, aged 39 years, with Ascites due to Multiple Malignant Abdominal Tumours. The condition had existed four years and he had been frequently tapped.—The President showed a woman, aged 53 years, with Loss of all the Toes of the Right Foot. During the past seven years the toes had gradually sloughed off and now one of the toes of the left foot had commenced to slough. The condition was regarded as a rare form of Raynaud's disease.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 16th, Mr. F. Ward being in the chair.—The following cases, pathological specimens, &c., were shown:—Mr. H. Secker Walker: (*a*) A case of Acute Syphilitic Iritis; and (*b*) a case of High Myopia treated by removal of the Crystalline Lens of each Eye.—Mr. Walter Thompson: Biliary Calculus removed from the Small Intestine for Obstruction.—Mr. A. L. Whitehead. Deformity of Nose treated by Paraffin Injection.—Dr. A. Bronner: A case in which Slight Mastoid Disease gave rise to all the symptoms of Severe Septic Basal Meningitis.—Mr. G. Constable Hayes: Dermoid of the Eye. Dr. E. F. Trevelyan: (*a*) A case probably of Erb's Juvenile Dystrophy; and (*b*) a case of Infantile Paralysis in which the atrophy has persisted chiefly in the small muscles of the hand. Cases and specimens were also shown by Mr. A. E. Pearson, Dr. T. Churton, Mr. W. H. Brown, Dr. T. W. Griffith, and Dr. J. Allan.—Dr. H. J. Campbell opened a discussion upon the Clinical Aspects of the Rheumatic Infection. After a brief historical survey of the subject he gave a short account of the arguments—bacteriological, epidemiological, and clinical—in favour of the view that acute rheumatism is a specific infective disease. He then considered the clinical aspects of a typical case, with a more detailed consideration of the heart affections, including malignant endocarditis, and the nervous manifestations, including chorea and rheumatic meningitis. He also pointed out the peculiarities of the affection in childhood and considered some of the more unusual features of the disease that occurred from time to time. The salicylate treatment was also briefly considered.—Dr. Churton, Dr. W. Edgecombe, Dr. W. R. Bates, and Dr. A. G. Barrs discussed the subject and the adjourned discussion was reopened by Dr. A. Mantle of Halifax, who dealt specially with that form of rheumatism associated with scarlet fever, the manifestations of which were identical with those of acute rheumatism in affecting joints and heart, chorea not infrequently following. He also contended that the relationship of acute rheumatism to so-called rheumatoid arthritis was by means so close as had been thought. Rheumatoid arthritis was not an entity and might occur from many kinds of infection. He was of opinion that there existed some diathesis favourable to the development of arthritis difficult to explain until chemical pathology assisted them more as to its nature.—Dr. Trevelyan regarded the existence of a rheumatic diathesis as quite unproved.—Dr. Griffith drew attention to the frequency with which he had observed cases of typical rheumatoid arthritis associated with heart lesions.—Dr. Maxwell Telling supported this observation and drew attention to the rarity of rheumatic nodules in childhood in that part of the country.—Mr. A. W. Whitehead and Mr. Michael A. Teale doubted the existence of a true rheumatic iritis. In their ophthalmic practice they had not met with a single undoubted case.—Dr. G. E. St. Clair Stockwell pleaded for the treatment of chorea with large doses of salicylates, claiming to have seen good results therefrom. He also supported Dr. Telling's statement as to the rarity in Yorkshire of rheumatic nodules.—Mr. E. Solly, Dr. J. W. Draper, Dr. Bronner, Dr. J. Tregelles Fox, and Mr. Ward also joined in the discussion.—Dr. Campbell, in a brief reply, pointed out that though a rare complication there were several undoubted cases of rheumatic iritis on record and that the experiments of Dr. F. J. Poynton and Dr. A. Paine supported this.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 14th, Mr. John Dacre, the President, being in the chair.—Dr. E. W. Hey Groves showed the following card specimens: Tumour of the Adrenal Gland, Parosteal Sarcoma of the Finger, Primary Sarcoma of the Thyroid, Sarcoma of Testis, and a Duodenal Ulcer which caused fatal hæmorrhage.—Dr. J. O. Symes read a paper on the Arthritis of Erythema Nodosum. He described three types of arthritis—viz., the gouty, the rheumatoid, and painful joints apart from objective signs. He stated the arguments for and against the theory that erythema nodosum is a rheumatic manifestation. Whilst the age curves of the two diseases coincided closely the seasonal and sex curves showed very wide divergency. On the whole he inclined to the view that the disease was an acute infective fever.—Dr. A. J. Harrison, Dr. W. K. Wills, Dr. F. H. Edgeworth, and Dr. Carey F. Coombs discussed the paper.—Dr. J. J. S. Lucas read a paper on Some Points in Prognosis in Pulmonary Tuberculosis. He spoke from his experience at the North London Consumptive Hospital and in his private practice and made the following deductions: (1) a phthisical patient should never consider himself sound, at least not for some years after loss of all symptoms; (2) the appearance of the patient, the shape of his chest, and his family history were of the greatest importance in prognosis; (3) of early symptoms hæmoptysis by itself was rather a good sign, whilst dyspepsia was a bad one; (4) isolated observations of temperature as a rule did not help the prognosis, but persistent evening high temperature for a month was bad; (5) a rapid pulse was one

of the worst of omens; (6) of throat complications, swelling and ulceration in the upper larynx were serious and the physical signs in the lungs were often deceptive in these cases; and (7) the effect of treatment could be gauged only by the condition of the patient several months after he had left the sanatorium and had undertaken duties which he intended to perform for the rest of his life.—Dr. C. Elliott, Dr. R. Shingleton Smith, Mr. W. Roger Williams, Dr. R. C. Leonard, Dr. Edgeworth, Dr. J. Michell Clarke, and Dr. J. R. Charles joined in the discussion which followed this paper, many of them thinking that Dr. Lucas took too gloomy a view of these cases and especially of the sanatorium treatment.—Dr. Coombs read a paper on Colitis Polyposa, based upon an account of a specimen in the Bristol General Hospital Museum, which consisted of the colon of a young woman who died from exhaustion after six months' dysenteric diarrhœa. There was general polyposis of the mucosa of the colon without ulceration. Microscopically this proved to be due to inflammatory hyperplasia of the submucosa. The case closely resembled one described by Dr. F. M. Pope.[1]—Dr. Clarke, Mr. Williams, and Dr. Harrison discussed the case.

THERAPEUTICAL SOCIETY.—A meeting of this society was held on Feb. 20th, Sir Lauder Brunton, the President, being in the chair.—Mr. Thomas Maben, F.C.S., read a paper on Anti-diphtheria Serum and its Preparation, illustrated by limelight views. He showed that the toxin of diphtheria was prepared by cultivating the bacillus in alkaline beef bouillon for about seven days and then filtering it and storing it in the cold. It was subsequently tested as to its potency on guinea-pigs and afterwards injected into horses which were perfectly healthy, at first in minute doses but gradually increased every week till 1000 cubic centimetres were injected at once, a quantity sufficient to kill 100 unprotected horses. By this procedure a very powerful antitoxin was developed in the horse's blood, which antagonised the diphtheria poison. After nine months of this treatment a gallon of blood was taken from the horse's jugular vein every week in glass cylinders and kept cold for four days till the serum separated. This serum was drawn off, filtered, and after three weeks, if the horse remained quite healthy, it was injected for the cure of diphtheria. If properly preserved it might retain its power for two or three years and it was important to inject it without delay in diphtheria, as only 1 in 238 patients died if injected on the first day, but 1 in 9 if not treated till the fourth day. There was no danger from large doses; in severe cases from 12,000 to 24,000 units should be used. In America and Germany the Government guaranteed the efficacy of the serum but in England this was done by private experts.—A paper on Clouds and Climate from Dr. Stuart A. Tidey of Montreux, Switzerland, illustrated by limelight views, was communicated, showing that in Switzerland a cloudless day was rarely met with, as after sunrise evaporation from the snowfields and glaciers caused clouds to form over them by the condensation of the vapour in cold air; these gradually extended over the neighbouring valleys and might form rain. After sunset evaporation ceased and the clouds disappeared. The clouds increased more rapidly when the air was moist and warm. In winter they were chiefly found at the lower elevations while the mountain tops were cloudless, but in summer the peaks were covered with clouds while the valleys were free; hence it was advisable that in autumn visitors should reside at first at a lower level having easy communication with higher stations, and Montreux on the Lake of Geneva was very favourably situated for this, as in autumn it was free from clouds which remained on the mountain peaks, and when clouds formed in winter there was easy access by rail to many higher stations, as Sierre, 1765 feet; Seysin, 4500 feet; and Les Avants, 3200 feet, all of which had good hotels and facilities for winter sports. Courbryer also, 3500 feet, was a very favourite winter station but could only be reached by carriages.

CORK MEDICAL AND SURGICAL SOCIETY.—A meeting of this society was held on Feb. 14th, Dr. R. P. Crosbie, the President, being in the chair.—Dr. O'Sullivan showed a case of Concurrent Acute Rheumatism and Acute Chorea complicated by Cerebro-spinal Meningitis in a girl, aged ten years, who was admitted to the South Infirmary in a highly feverish condition with well marked choreic movements. These were so severe as to render alimentation by the mouth impossible, so rectal feeding was begun and continued for the lengthened period of 25 days. To make matters worse two big, unhealthy-looking bedsores were present. Auscultation revealed the presence of murmurs at all the orifices and, in fact, a condition of pancarditis prevailed. About a week after admission retraction of the head was noticed, together with convergent strabismus of the right eye. Albumin appeared in the urine and the joints were so relaxed that dislocation of the sternal end of the right clavicle occurred. The treatment consisted in counter-irritation by fly blisters over the second, third, fourth, and fifth intercostal spaces, alkalies and aspirin to combat the rheumatic poison, and bromide of sodium to relieve the meningeal hyperæmia, whilst strychnine was given hypodermically for the grave asthenia. The patient made a good recovery. Dr. O'Sullivan remarked on the rare occurrence of such a case and invited discussion as to the etiological factor in the complicating meningitis.—Dr. Moore thought that the meningitis was due to the organism of rheumatism.—Dr. A. A. Hudson read some notes on "Fango di Battaglia," giving an interesting account of the origin, the chemical composition, the technique of the application, and the indications for the use of this kind of mud bath. He said that not only was it invaluable in arthritic cases, but it was beneficial in anæmia, chlorosis, scrofula, eczema, psoriasis, and so on. He read clinical notes of cases, Continental and English, and some that came under his own care so treated with excellent results.—Mr. P. G. Lee read a paper on the Preparation of Antitoxins, illustrated by lantern slides showing the various steps and apparatus used.

HUNTERIAN SOCIETY.—A meeting of this society was held on Feb. 28th, Dr. F. J. Smith, the President, being in the chair.—Dr. W. H. Kelson read a paper on Some Throat Affections, giving a short account of mycosis of the tonsils, Vincent's angina, erysipelatous inflammation of the fauces, chronic pharyngitis, and a condition which resembles secondary syphilitic affection of the throat but does not yield to anti-syphilitic treatment. He discussed the relative importance of local and general treatment in many affections of the throat.—The President, Dr. Fortescue Fox, Mr. F. R. Humphreys, Mr. W. A. Milligan, Dr. Purves Stewart, and Dr. W. J. Galt discussed the paper and Dr. Kelson replied.—Dr. Milligan read a paper on the Diagnosis of Early Extra-uterine Pregnancy based on his experience of 50 cases in the last three years. He considered that a history of previous sterility was of no value. He laid stress on the importance of pain as a symptom, especially pain on micturition. In cases where the patient said that she had not missed a period careful questioning would often elicit the fact that her last menstrual period was abnormal in some way. Pulsation in one of the lateral fornices was an important sign. As regards differential diagnosis, the most important conditions were intra-uterine pregnancy, retroversion of the pregnant uterus, inflamed appendages, and small ovarian tumours with twisted pedicles.—The President, Dr. H. Russell Andrews, and Mr. Hugh Lett discussed the paper, and Dr. Milligan replied.—Dr. Stewart read a paper entitled, "What is the Earliest Stage at which we can diagnose Tabes Dorsalis?" He considered that a diagnosis should be made before ataxy appeared, from the presence of some of the following symptoms: lightning pains, girdle sensation, woolly feeling in the soles of the feet, difficulty in micturition, transient ocular paralysis, gastric crises, loss of "vibration sense," areas of cutaneous analgesia and hyperæsthesia, analgesia of the glans penis, and Biernacki's symptom. The ankle-jerks were lost long before the knee-jerks. The most certain early diagnostic sign was to be found by examination of the cerebro-spinal fluid. Normally this fluid contained very few cellular elements, while in tabes dorsalis and general paralysis of the insane it contained an enormous excess of lymphocytes.—The President, Dr Langdon Brown, and Dr. Kelson discussed the paper, and Dr. Stewart replied.

SOCIETY OF ANÆSTHETISTS.—A meeting of this society was held on March 2nd.—Mr. C. Carter Braine read a paper on Experiences of Anæsthetics in 200 Consecutive Cases of Prostatectomy. On account of their great age and physical infirmities these were the worst subjects for anæsthetics. 66·8 years was the average age, 11 being octogenarians. He used ether 18 times, chloroform 50 times, chloroform with one-twelfth ether 34 times, and chloroform

[1] Brit. Med. Jour., July, 1904.

with one-tenth alcohol 43 times. Of these chloroform with one-twelfth ether had proved the best anæsthetic. The marked effects of prostatectomy upon the circulation, respiration, and muscular system were fully illustrated by these cases. Abdominal rigidity, even under deep anæsthesia, was occasionally very troublesome, pushing the anæsthetic only causing respiration to cease without the recti relaxing. This liability to rigidity was dependent on the nature of the operation, the part being so freely supplied with spinal and sympathetic nerves.—The President, Mr. Freyer, Mr. Mortimer, Dr. R. J. Probyn-Williams, Mr. MacCardie, Mr. Burns, Mr. Thomson Walker, and Mr. Harvey Hilliard all agreed on the troublesome rigidity and the preferability of chloroform over ether in these cases.

ROYAL MEDICAL SOCIETY OF EDINBURGH.—A meeting of this society was held on March 2nd, Dr. R. A. Chambers being in the chair.—Mr. T. Graham Brown read a dissertation on Organic Evolution. After noticing the views of Empedocles, as set forth by Lucretius, and Aristotle, Mr. Brown directed his attention to the theory evolved simultaneously by Darwin and Russel Wallace. Having briefly sketched their views Mr. Brown considered the position of the Neo-Lamarckian and Bathmic schools in regard to evolution, emphasising the essential points of difference between them and criticising their views generally.—Dr. J. G. Craig exhibited a case of Hæmorrhagic Cyst of the Pancreas following an injury.—Dr. N. S. Carmichael presented a case of Diabetes in which death had occurred owing to an intercurrent attack of acute croupous pneumonia and showed a chart demonstrating the effect which the rise of temperature had had on the excretion of urine and on the amount of sugar and urea contained in it.

MANCHESTER MEDICAL SOCIETY.—A meeting of this society was held on Feb. 21st, Dr. S. Buckley, the President, being in the chair.—Mr. Platt gave an account of a case of Primary Epithelioma of the Urethra which had occurred in a man, aged 59 years. The epithelioma had supervened upon a traumatic stricture dating from boyhood. Complete amputation of the penis had been performed about two months previously, since which time the patient had remained in good health. The diagnosis had been confirmed by microscopic examination. Reference was made to the rarity of this condition, to the symptoms to which it gave rise, and to the difficulties of diagnosing it sufficiently early to permit of the performance of a radical operation.—The President gave an address on Medical Progress and Training in Relation to Medical Practice.

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 8th, Mr. W. H. Date being in the chair.—Dr. J. Mortimer reported a sequel to a case of Hyperpyrexia. The original case was that of a woman whose temperature reached 106° F. seven times in seven weeks and once was as high as 110°. There was a faint Widal reaction. Complete recovery took place. Treatment consisted mainly of ice packs with pilocarpine injections and stimulants. 12 months later her husband was taken ill, rapidly developed hyperpyrexia with a temperature of 111°, and died in an unconscious state with tonic spasms and opisthotonos in spite of similar treatment. This man slept on the feather bed on which his wife had slept during her illness. It had not been disinfected.—Dr. J. A. W. Pereira read a paper on Arterio-sclerosis.

Reviews and Notices of Books.

A Text-book of the Practice of Medicine, for Students and Practitioners. By HOBART AMORY HARE, M.D., B Sc. Illustrated with 129 engravings and 10 plates in colours and monochrome. London: Henry Kimpton. 1905. Pp. 1119. Price 21*s.* net.

THE author of this volume is already well known in this country through his "Text-book of Practical Therapeutics" and his "Text-book of Practical Diagnosis." As professor of therapeutics in the Jefferson Medical College of Philadelphia and physician to the Jefferson Medical College Hospital he has had abundant opportunities of collecting material for a text-book on the practice of medicine and of becoming well acquainted with the needs of students. In his preface he states that he has attempted to present the facts which the practitioner needs and which the student must thoroughly grasp if he is to be successful in gaining his degree and in practising his art. Mindful of the present interest in tropical diseases, both in this country and in the United States, he has included in his volume several chapters written by Dr. Charles F. Kieffer who has seen active service in the Philippines and has delivered lectures on tropical diseases at the Jefferson Medical College.

In considering a new text-book on medicine one of the first objects of the reviewer is to ascertain from the arrangement the author's standpoint towards infectious diseases. In the present volume these are first considered; typhoid fever is dealt with in great detail and with numerous illustrative charts. The account of the complications and sequelæ of typhoid fever is remarkably full but it may be noted that the numbers relating to the frequency of albuminuria and of acute nephritis appear to be higher than those met with in this country. Space is found for a full description of the Widal test which should enable any student to follow the directions with a reasonable prospect of success. Two pages are devoted to paratyphoid fever and in these the author has summarised the present state of knowledge of this condition, which differs from typhoid fever in the Widal reaction being usually negative and in the more favourable character of the prognosis. It is satisfactory to find that the author groups amongst the infectious diseases the following: cerebro-spinal fever, croupous pneumonia, gonorrhœal infection, acute rheumatic fever, tuberculosis, and a large number of the tropical diseases. The account of croupous pneumonia is in many respects noteworthy—e.g., the recognition of exposure to cold as a predisposing cause which "decreases the general systemic, or local, powers of resistance to infection," and the appreciation of the influence of toxæmia in the causation of dyspnœa; but, on the other hand, some of the commoner symptoms are not mentioned and accordingly diagnosis appears to be based upon leucocytosis almost more than upon the physical signs.

The sections relating to tropical diseases are perhaps those in which this book shows the greatest differences from other text-books and they indicate the long though unequal strides that have been made of late years. The etiology now rests upon much more certain foundations but our knowledge of treatment, to judge from the account here given, has not made corresponding advances. It is impossible to read what is here said upon this subject without a restless feeling of discontent and a conviction that in future editions it may be possible to speak with more precision and to advocate methods of treatment less suggestive of mediæval times. With this statement of opinion we feel sure that the author, from his well-known therapeutic tendencies, will not quarrel. Increased knowledge of the causation must inevitably be followed speedily by improved methods of treatment.

The diseases of the respiratory system are satisfactorily dealt with in the next section, more space being devoted to pathology, morbid anatomy, and treatment than to symptoms and physical signs. These two subjects are, indeed, sometimes included under one common heading; thus we read that "the symptoms of emphysema may be best divided into the objective or those that can be seen by the physician, and the subjective or those described by the patient." For pleurisy with effusion Dr. Hare recommends little beyond tapping and although he gives detailed directions about the method of tapping he scarcely indicates sufficiently the circumstances calling for this measure.

The diseases of the circulatory system afford few opportunities for originality but the account here given is marked by the same lucidity which has characterised the earlier sections; it may be worth noting that in the treatment of

ulcerative endocarditis not much reliance is placed in the antistreptococcic serum; the author considers that it may be of benefit in a few cases provided that the streptococcus is the cause of the disease and provided that the variety of the streptococcus used in the preparation of the serum is the same as that present in the heart.

It is scarcely necessary to follow in any detail the rest of this text-book. An anatomical arrangement is generally adopted, though after the diseases of nutrition space is found for a section on intoxications and for another upon diseases due to animal parasites. Under the former, in addition to alcoholism, morphinism, and lead and arsenical poisoning, the author has included food poisoning of sundry unusual varieties, together with pellagra, lathyrism, atriplicism, and lacquer poisoning, conditions which are certainly not often met with in this country. The diseases of the nervous system are reserved for the concluding section, those with definite organic lesions preceding those of functional origin. Amongst the latter adequate space is devoted to the consideration of many interesting conditions, such as caisson disease, latah, amok, astasia abasia, angioneurotic œdema, and erythromelalgia.

Viewed as a whole this volume merits high commendation and will probably be welcomed by many students in this country as well as in the home of its birth. The transatlantic origin is necessarily well marked both in the citation of authorities and in the spelling; rarely is it reflected in the treatment, though in some few instances reference is made to medicinal plants which are unknown or unobtainable in this country. The book is perhaps a little overburdened with statistics from various sources but an intelligent student will readily appreciate these at their proper value and will not be tempted to commit them to memory. The style is thoroughly clear and direct; there is no ambiguity of statement to puzzle the beginner and the illustrations and plates are admirably chosen to facilitate comprehension.

Traité de Gynécologie Clinique et Opératoire. Par S. POZZI, Professeur de Gynécologie à la Faculté de Médecine de Paris. Quatrième édition revue et augmentée avec la collaboration de F. JAYLE. Tome premier. Paris: Masson et Cie. 1905. Pp. 765. Price 20 francs.

THE second and third editions of this work followed so closely upon the first that no very marked modifications of the general plan of the book were made. In this the fourth edition the sections relating to treatment have been considerably altered and the indications for, and the choice of, one or another operation have been more clearly defined and laid down. As the author points out in the preface the work has thereby acquired a more personal character. Numerous changes also have been made in the portions of the chapters dealing with pathological anatomy and these sections in large measure have been rewritten. In view of the very large increase in the amount of the literature dealing with all the more important departments of gynæcology Professor Pozzi has been compelled to refrain from increasing the amount of space devoted to the bibliography. He has endeavoured to mention all the more important works or any of the more recent which embody some really new addition to our knowledge. In the preparation of this edition he has had the valuable assistance of his old pupil and now colleague, Dr. Jayle. The book, when the first edition appeared, received our hearty commendation and we welcome a new and revised edition. Quite apart from its own merits, which are considerable, it affords us a clear and an important review of the teaching of the modern French school of gynæcologists.

To the first chapter on Asepsis and Antisepsis in Gynæcology a good deal of new material has been added. An account is given of the installation and fittings of an operation theatre and the question of sterilisers is fully discussed. In the section dealing with the cleansing of the hands great stress rightly is laid upon the importance of not infecting the hands, the use of alcohol is advocated, and the systematic employment of gloves. In the section on Anæsthesia a clear description is given of the operation of lumbar puncture and rachico-cocainisation. Professor Pozzi, however, does not believe that it will retain its place in practice and in this we agree with him. In the chapter dealing with the various methods of examining the pelvic organs the different forms of exploration of the bladder and the ureters, and the collection of samples of urine from either kidney are fully explained. In his description of the natural life-history of fibroid tumours of the uterus the author expresses his belief that they tend in ordinary circumstances to diminish at the menopause, although he admits that there are numerous exceptions to this rule. A most interesting observation is recorded on p. 347, where there is a figure of a fibroid which has been invaded by a carcinoma secondary to a similar growth in the breast. The discussion on the various operations which are available in the treatment of fibroid tumours is illustrated by a series of very instructive tables showing the mortality results of the different procedures. The author declares his preference for sub total hysterectomy over total abdominal hysterectomy, because he thinks the former more simple, more rapid, and less grave an operation than the latter. He is not inclined to attach much weight to the risk of the occurrence of carcinoma in the stump of the cervix. A new chapter is that dealing with adenomyomata of the uterus. The view is expressed that the more superficial tumours of this type have a congenital origin from the Wolffian duct and that the tumours arising close to the cavity of the uterus owe their glandular elements to inclusions of the uterine mucous membrane.

A very full account is given of the advantages of the vaginal and abdominal routes in dealing with cancer of the uterus or of the cervix by operation. The preference is given to abdominal hysterectomy, except for the very earliest cases where the growth is absolutely limited to a portion of the cervix. Professor Pozzi does not practise the systematic ablation of the pelvic glands. As he points out, it adds very seriously to the danger of the operation. He contents himself with as wide a removal as possible of the cellular tissue round the uterus. In most of the cases in which he has observed a recurrence it has occurred close to the vaginal scar and not in the glands.

A new section has been added on endothelioma of the uterus and it is illustrated by two figures from Gebhard. The account of hydatidiform mole and chorion epithelioma is a full and clear one. The views put forward by Marchand are in large part followed and adopted and an interesting account is given of the origin of the syncytium and its relation to Langhans's layer. The remainder of the volume is devoted to the subject of displacements of the uterus and their appropriate treatment. The various operative procedures are fully described and their merits are considered. The book well maintains the favourable impression created by previous editions and we hope that the second volume will follow the first at no distant date.

Master Workers. By HAROLD BEGBIE. With eight portraits. London: Methuen and Co. Pp. xi.–306. Price 7*s.* 6*d.* net.

THIS volume consists of a series of character studies of more or less eminent men reprinted from the pages of the *Pall Mall Magazine* and the *London Magazine*. In these days when the journalistic interview has become debased into an impertinent and undesired intrusion or in some cases

a self-sought advertisement it is something of a relief to find a serious attempt to present the motives and aims of a few strenuous workers in widely different fields in readable form without any unnecessary personal details.

Mr. Begbie tells us in his preface that his purpose in publishing these studies is twofold: first, to bring into one compass and to present in conversational form the thoughts of leading men working at different phases of modern inquiry, for he finds that there is, especially among scientific men, great insularity of thought and too often a lack of knowledge of the advances made in branches of scientific inquiry other than their own. He therefore hopes that it may be "possible for the reader to make himself at least elementarily acquainted with some of the various activities of modern investigation." The second object is to try to elevate the interview from "the boudoir atmosphere of vulgarity and commonplace" into which it has sunk in this country. The subjects of Mr. Begbie's 20 studies range from His Majesty the King to "the modern surgeon" and comprise such widely diverse personalities as Lord Roberts, Mr. John Morley, Admiral Sir John Fisher, the Bishop of London, Mr. Joseph Chamberlain, the Rev. R. J. Campbell, Mr. H. Beerbohm Tree, and Sir Oliver Lodge. Mr. Begbie is thoroughly in earnest and shows a profound admiration and warm personal regard for many of his subjects. He writes well, in good scholarly English, with frequent allusions to, and quotations from, philosophical, literary, and scientific classics. The keynote is struck in the chapter devoted to the Bishop of London, one of the best articles in the series, in which the motive of the Bishop's life is described as "the gospel of 'worth while.'" Professor W. Osler, in his charming book "Æquanimitas," describes the master word in medicine as work, and in like manner these character studies show that the secret of the success of the men whom he discusses is their persistent and untiring striving each in his own special field.

Mr. Begbie's interest in psychical problems and research is made very obvious throughout, but especially in the articles devoted to Sir Oliver Lodge, Sir William Crookes, Dr. Alfred Russel Wallace, Mr. Frank Podmore, and Dr. J. Milne Bramwell. He frequently refers to Frederick Myers's theory of a supraliminal and a subliminal consciousness and makes many references to spiritualistic and occult phenomena, such as hypnotism, telepathy, and thought transference, but always temperately and in critical fashion.

The concluding article is entitled "The Modern Surgeon" and to it there is appended a footnote in the following terms: "Medical etiquette forbids the publication of the name of the eminent surgeon to an intimate knowledge of whom I am indebted for any interest which the reader may find in this attempt to suggest the wonderful romance of modern surgery." Mr. Begbie regrets that the name of the surgeon does not stand at the head of the article but we venture to think that the article gains in value from the anonymity of the subject of it, as it may serve in some respects as a study of a type rather than of an individual. Incidentally Mr. Begbie refers to the striking advances in surgery rendered possible by the discoveries of Lister and Simpson and sketches briefly the career of a medical student. He points out the necessity in the surgeon of rapidity in forming judgments and of adaptability to conditions, perhaps unexpected, occurring during an operation. He sums up the characteristics as "a steady nerve, a sure hand, a quickness of observation, an adaptability of mind, and a swiftness of decision"—a description with which there is no fault to find.

Mr. Begbie's book we have read with pleasure and can commend it to our readers as affording much valuable and interesting information of a stimulating and thoughtful character.

Chapters in Pathology. By W. S. GREENFIELD, M.D. Lond., F.R.C.P. Lond. and Edin., Professor of Pathology in the University of Edinburgh; and GEORGE LYON, M.D. Edin., M.R.C.P. Edin., Second Assistant in the Department of Pathology in the University of Edinburgh and Assistant Pathologist to the Edinburgh Royal Infirmary. Edinburgh: William Green and Sons. 1905. Pp. 113. Price 5*s.*

ON the title-page of this volume it is explained that the work is based on lectures which were delivered by Professor Greenfield upon some points in the pathology of elementary nutritive and circulatory derangements. We agree with him that there are some subjects in connexion with general pathology with regard to which there has been constant difficulty. As Professor Greenfield remarks in his preface, this difficulty arises from the fact that the teaching in accessible text-books has sometimes been entirely at variance with the demonstrable facts and with the everyday experience of the laboratory and the post-mortem rooms, as well as with clinical observation. To a large extent the gradual advances of pathological science have come to be recognised and taught, but there are some common and elementary, yet fundamental, points upon which many otherwise admirable text books are still far behind. It is especially to these points that attention is directed in this small work.

The first chapter deals with elementary cell changes in relation to disease and stress is laid on the fact that since all the activities of life are alternately carried out by those protoplasmic units termed "cells," everything which concerns cell structure and the phenomena of cell life must be of especial interest to the pathologist. It is further pointed out to the student that it is of importance to bear in mind the constant activity of cells and their ready response to variations in the conditions of life and to stimuli of many kinds. It is only when realising this state of constant activity that the microscopic appearances in dead cells can be properly estimated or understood.

The various morbid processes are described in a very clear manner. The common pathological changes are considered under the old names but from the modern standpoint. In commenting on "cloudy swelling" (parenchymatous degeneration) it is explained that this condition is not one disease or "degeneration," but is the expression of reactions common to cell life, varying widely both as to their cause and in the nature of the changes which occur. Attention is rightly directed to the fact that this type of change in cells is well seen in diseases in which there is some soluble toxin circulating in the blood, the acute infectious diseases affording most striking examples.

Pathological pigmentation is an important but somewhat complicated process. The classification adopted in this volume is a convenient and practical one and is determined by the nature and the source of the pigment. Three main groups are mentioned: (1) albuminoid, when the pigment corresponds to the normal animal pigments, such as those of the skin and choroid; (2) hæmatogenous, when the source of the pigment is hæmoglobin, through changes in its hæmatin; and (3) extraneous, when the pigment is derived from foreign substances which are themselves coloured. These three groups are described in detail and the student should receive very clear impressions on a somewhat difficult subject. The chapter on atrophy will also repay study; the causes of local or partial atrophy are particularly well described. In the chapter on necrosis some interesting remarks are made on bacterial toxins and it is shown that the action of these toxins in producing profound derangements in cell life is their most important mode of producing disease.

There is no subject in the whole range of pathology or of medicine which has excited so much controversy

as inflammation. The chapter dealing with the nature of this process is one of the best in the book and the matter is treated in a manner which merits great praise. The student is made to understand the enormous value to pathology of the specialised research which has followed the effort to establish one or other view of the essential nature of inflammation. He is taught that if the processes connected with it are regarded as a whole, in all of them will be found a series of reactions combined for the common object of removing or antagonising the irritant and of preventing and repairing damage. In some cases one process is most active, in others another. It is further pointed out that from the moment of injury to the complete restoration to such health as is possible a succession and coöperation of these reactions are found all united to a common end. After this introduction the various phenomena associated with inflammation are described in a more graphic and comprehensive manner than we remember to have seen in any other text book on the subject.

We were much charmed by a perusal of this small work and could have wished that it had been longer. We can cordially recommend it as an excellent introduction to the study of pathology.

LIBRARY TABLE.

Traitement du Cancer Utérin Inopérable. Par le Dr. J. RÉCAMIER. Paris: Georges Steinheil. 1905. Pp. 214. Price 3.50 francs.—This work is of special interest when we recall the fact that the author is the grandson of J. C. A. Récamier, the distinguished French surgeon who published numerous works on gynæcology and amongst others an important one entitled "Recherches sur le Traitement du Cancer." The treatment of cases of inoperable cancer is a subject of much importance, especially to the unhappy victims of the disease. At the present day, when our minds are much occupied with methods of operation for those cases which are still within the reach of possible relief by the knife of the surgeon we are liable to forget how much the sufferings of those who unhappily have sought our advice too late to enable us to hold out any hope of radical relief by operation can be assuaged by appropriate treatment carried out with thoroughness and care. The author paints a gloomy picture of the results of surgical interference and considers that the extensive abdominal operations recommended by many German surgeons are of little value and not likely to survive. He thinks that no cases of cancer of the uterus in which the growth has spread beyond the uterus should be subjected to radical operations as the chance of ultimate cure is so small. With such views as to the possibility of curing these cases by operation the author naturally lays considerable stress upon the various methods of palliative treatment. All the different methods are fully considered in this book and it contains a large amount of information which will prove very useful to all those who have such cases under their care.

A Manual of Chemistry: Inorganic and Organic. By ARTHUR P. LUFF, M.D., B.Sc. Lond., F.R.C.P. Lond., F.I.C.; and FREDERIC JAMES M. PAGE, B.Sc. Lond., F.I.C. Third edition, revised throughout. London: Cassell and Co., Limited. 1905. Pp. 555. Price 7s. 6d.—We have previously acknowledged the usefulness of this manual to students of medicine on the occasions of reviewing the first and second editions. In the third edition certain alterations have been made consistently with recent advances and the modern requirements of the student. Short descriptions have been added of the methods of determining boiling point and melting point and also a section on the relation of structure to optical behaviour. Certain new drugs have also received a place and the practical portion has been extended so as to include a brief account of volumetric analysis and a scheme for the analysis of a mixture containing two metals and one acid. The book thus covers the ground of the chemistry examination, both theoretical and practical, of the English Conjoint Board. So far it is well calculated to give the student an excellent introduction to the principles and practice of chemical science but, of course, a more advanced work will be required later in the curriculum when the application of these principles to medical subjects must be studied in greater detail.

The Nervous Affections of the Heart. By GEORGE ALEXANDER GIBSON, M.D., D.Sc. Edin., LL.D St. And., F.R.S. Edin., F.R.C.P. Edin., Physician to the Royal Infirmary, Edinburgh; Lecturer on Medicine and Clinical Medicine, Edinburgh. Second edition. London and Edinburgh: Young J. Pentland. 1905. Pp. 106.—This work is a publication of the Morison lectures delivered before the Royal College of Physicians of Edinburgh in 1902 and 1903. In THE LANCET of April 22nd, 1905 (p. 1072) we reviewed the first edition, and that a second edition should have been so speedily called for is proof that Dr. Gibson's exposition of an interesting but difficult subject has been received with the encouragement which it deserved. The demand for another edition has afforded Dr. Gibson an opportunity for thorough revision of the text but the present issue is practically a reprint of the work as published in 1904. There is no need for us, therefore, to do more than to refer our readers to the previous review and to congratulate Dr. Gibson on the success of his labours.

Qualitative Chemical Analysis: Organic and Inorganic. By F. MOLLWO PERKIN, Ph.D. Third impression, second edition. London: Longmans, Green, and Co. 1905. Pp. 308. Price 4s.—We welcomed the first edition of this book because amongst other things it marked a fresh departure in regard to most books of this class, inasmuch as the plan adopted is to bring facts and principles together so that the student may apply for himself his theoretical knowledge to aid him in his practical work and, on the other hand, may bring his practical knowledge to bear on the elucidation of theoretical problems. Moreover, the scientific method is employed of representing the action that takes place in certain chemical changes, as when a precipitate is produced by adding one solution to another, by the movement of the "ions." In the new edition we find that theoretical considerations are extended and a section has been added on "mass action." Several other important additions have been made and altogether the book has been seriously revised. We regard it as one of the foremost guides to qualitative chemical analysis and the reader may be confident that what he reads therein is fully in accordance with the modern developments of the subject.

JOURNALS AND MAGAZINES.

The Liverpool Medico-Chirurgical Journal.—The January issue of this journal is a double number and contains much material of interest. From the surgical point of view we may notice Mr. Charles G. Lee's commendation of Mr. T. Pridgin Teale's operation for the removal of cataract, though from the discussion which followed the paper he does not seem to have convinced his hearers of its superiority to other methods. Mr. Keith W. Monsarrat records a case of fractured femur in a hæmophilic subject which healed satisfactorily. Professor Rushton Parker commends the perineal route for the removal of enlarged prostate in preference to the suprapubic operation and Mr. W. Thelwall Thomas writes of the treatment of concussion of the brain, deprecating the use of the ice-bag in such cases as tending to retard recovery. Dr. Charles J. Macalister discusses the pathology of gastric ulcer and attributes its causation to toxic bodies retained in cases of suppressed menstruation. Professor W. Carter contributes

an interesting paper on Remedies, New and Old, in which he claims good results from the use of sarsaparilla in pulmonary tuberculosis and wasting diseases in spite of the dicta of the pharmacologists that it is quite inert, and also relates some good results in cases of hepatic colic apparently due to the administration of succinate of iron. Mercurial ointment and tartarised antimony are other remedies which receive a word of praise, while the practical omission of venesection from among modern means of treatment is noted with regret. Among the other articles of interest we have only space to mention that by Dr. W. Murray Cairns on Asepsis in Obstetrics, pleading for the recognition of labour as a condition which calls for no less elaborate precautions than does a surgical operation.

The Medical Chronicle.—In the February number appears a paper by Surgeon G. M. O Richards, R.N., giving his experiences in searching for the Spirochæta Pallida in cases of Syphilis or Suspected Syphilis. The article includes an excellent bibliography of the subject which shows the amount of attention that it has excited. No less than 117 papers are herein contained, although the discovery of the organism was only announced in 1905. Dr. Miles B. Arnold contributes a brief abstract of Some Experiments on the Possible Action of Diphtherial Toxin upon the Excised Frog's Heart, the results being entirely negative. He recommends chinosol as the most harmless antiseptic for addition to serums intended for therapeutic use.

The Quarterly Journal of Microscopical Science. Edited by E. RAY LANKESTER, F.R.S., with the coöperation of ADAM SEDGWICK, F.R.S., W. F. R. WELDON, F.R.S., and SYDNEY J. HICKSON, F.R.S. With lithographic plates and text figures. New series, No. 196 (Vol. XLIX., Part 4). February, 1906. Pp. 158. London: J. and A. Churchill. Price 10*s*.—The articles contained in this number of the *Quarterly Journal of Microscopical Science* are: 1. Studies in Spicule Formation, by W. Woodland, University College, London, representing a continuation of the author's researches on this subject and especially dealing with the scleroblastic development of the spicules in Cucumariidæ, with a note relating to the plate and anchor spicules of Synapta inhærens, with three plates. Mr. Woodland in giving the results of his own researches calls in question the accuracy of those of M. Hérouard who describes the development of the spicules in the Holothuriadæ of the French coasts. 2. On the Maturation of the Unfertilised Egg and the Fate of the Polar Bodies in the Tenthredinidæ (saw flies), by L. Doncaster, M.A., Mackinnon student of the Royal Society, with two plates. 3. The Rôle of Mucus in Corals, by J. E. Duerden, Ph D. Lond., professor of zoology at the Rhodes University College, Grahamstown, Cape Colony. Dr. Duerden shows that nutritive substances constitute stimuli to corals, occasioning a discharge of mucus, by which they are entangled and drawn down the stomadæum by inhalant currents. 4 Observations on the Structure and Life-history of Pleistophora periplanetæ, Lutz and Splendore, by W. S. Perrin, B.A., Shuttleworth research student of Gonville and Caius College, Cambridge, with two plates. The organism is a myxosporidian parasite of the ordinary black cockroach. 5. A Study of the Life-history of Bucephalus Haimeanus: a parasite of the Oyster, by David Hilt Tennent, with four plates. The varieties of bucephalus, several of which are known, are the larval form of species of gasterostoma; they are widely distributed and exercise an injurious influence on the oyster and are well deserving of the careful study which Mr. Tennent has devoted to them, though the toxic action of oysters so infected has not been demonstrated. This part of the journal contains the index to Vol. XLIX.

Ophthalmology. H. v. WURDEMANN, M.D., editor. Vol. II., No. 2, January, 1906. Editorial and publishing office: 105, Grand-avenue, Milwaukee, Wisconsin, U.S.A Price 6*s*., or £1 1*s*. per annum. Pp. 211.—The original articles contained in this number are: 1. History of the Ocular Treatment of Migraine and Headaches, by Oscar Wilkinson, A.M., M.D., of Washington. 2. What are the so called Reflexes which can properly be referred to Eye-strain? by Lucien Howe, M.D., of Buffalo. 3. The Symptoms of Ametropia, by Howard F. Hansell, M.D., of Philadelphia. 4. Retinal Hæmorrhages in Apparently Healthy Eyes, by E. W. Stevens, M.D., of Denver. 5. Description of a Single-stitch Operation for Advancement of the Exterior Ocular Muscles, by Charles A. Oliver, M.D., of Philadelphia. 6. A New Punch for removing Membranes from the Post-pupillary Space in Traumatic or Secondary Cataract and for Making an Artificial Pupil (illustrated), by Mark D. Stevenson, M.D., of Akron. 7. Intraocular Irrigation, by J. A. Lippencott, M.D., of Pittsburg, Pennsylvania. 8. Euphthalium Conjunctivitis, by Charles J. Kipp, M.D., of Newark. In addition there are numerous abstracts from American and foreign literature and several reviews.

New Inventions.

A NEW FORM OF TYMPANIC MASSEUR.

THE illustration represents a new form of tympanic masseur which I think will be found a distinct improvement on the ones previously in use. It has been made by Messrs. Mayer and Meltzer of 71, Great Portland-street, London, W., in two forms and can be worked by hand or by power. The former is convenient for a patient's home use and the latter, which is shown in the illustration, for the consulting room where electrical energy or a water motor is available. The principal points of difference between this masseur and the ones hitherto in use are as follows: (1) It is much more substantially constructed; (2) there is no oscillating cylinder; and (3) its principles of construction are sound from a mechanical point of view and admit of wear being taken up or the introduction of new spare parts. It is almost noiseless and can be driven at any speed up to 5000 or 6000

revolutions per minute if required. Nearly two years' continuous work in hospital and private practice has produced no sign of wear in the instrument used by myself. The illustration practically explains itself, but it may be mentioned that the cylinder, fixed firmly to the base-plate, has a metallic piston accurately ground in so as to be air-tight. This is actuated by means of a gun-metal connecting-rod connected above to the disc by a screw, pin, and bush, which enables the stroke to be regulated to any length. In the hand masseur movement of the handle produces with ease 2000 strokes of the piston per minute through a multiplying gear contained in the small square gear box. The piston is open at one end, resembling a petrol motor in construction. I find it considerably facilitates smooth running to keep a little thick lubricating oil in here. The power masseur may be driven by a small electric motor of about 1-16 horse power supplied either from the main or from accumulators; a small water motor answers the purpose equally well.

Concerning the wonderful therapeutic and prophylactic uses of tympanic massage, except in cases with a discharge or myringitis, I need here say nothing beyond the fact that every case should be first carefully examined through a pneumatic speculum (preferably attached to the machine) in order that the exact length of stroke may be employed. On the whole, the shorter this is within active limits the better and the speed should be high. There should be just sufficient suction efficiently to move the drum. In ordering the instrument for home use the surgeon should always set the stroke for the patient; otherwise a hæmatoma might be produced.

Hertford-street, W. H. STANLEY TURNER.

A COLOTOMY TRUSS.

THE want of a good truss has been felt by everyone treating artificial anus after colotomy. The important points in a good appliance of this kind are as follows: (1) it must be worn with comfort and not be bulky; (2) it must stop leakage of fæces; and (3) it must not become plugged with solid fæces. Hyatt's colotomy truss fulfils all these requirements. It consists of a celluloid pad, which surrounds the opening in the colon and has a neck slanting in a downward direction, to which is attached an indiarubber bag, the truss being fastened to the abdomen by an elastic band or belt. The celluloid pad or cup is shown in Fig. 1, the upper end which is in contact with the abdomen being turned away

FIG. 1.

FIG. 2.

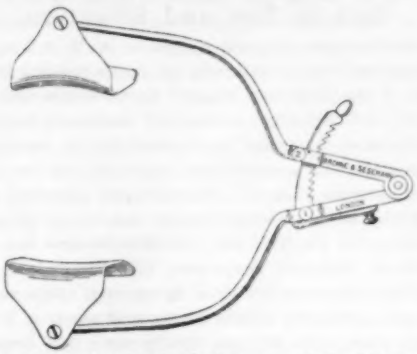
from the beholder. This end measures about four and a half inches horizontally and three and three-quarter inches vertically. The five projecting studs are for the attachment of the retaining belt and the indiarubber bag shown separately in Fig. 2. All the parts are easily taken asunder and can readily be cleaned. This truss has been worn with great comfort by several cases on which I have operated. It is made by Messrs. Brady and Martin, Northumberland-road, Newcastle-on-Tyne.

W. H. HORROCKS, F.R.C.S. Eng.,
Senior Honorary Surgeon to the Bradford Royal Infirmary.

Bradford.

A MODIFIED KELLY'S RETRACTOR.

I BEG to draw attention to a modification of Howard Kelly's abdominal retractor which I believe will be found very practicable. The instrument is made by Messrs. Krohne and Sesemann of 37, Duke street, Manchester-square, London, W. Kelly's original pattern of this instrument is probably too well known to need either description or recommendation. The modified pattern, of which an illustration is appended, is the one in use at the Samaritan Free Hospital for Women and at St. Mary's Hospital for Women and Children, Plaistow. The chief alteration consists



of a ratchet catch, whereby the instrument is fixed in position automatically without the necessity of having, as in the original retractor, to screw the arms to the tangent. To lessen the expense of manufacture solid tongues are substituted for the forked blades of Kelly's instrument. In the high pelvic posture it is found that the instrument is inclined to slip down but this can be prevented by using safety-pins to attach the arms of the retractor to the aseptic covering which invests the patient. A notch made in each arm just beyond the shoulder of the instrument prevents the safety-pins from slipping.

Harley-street, W. CUTHBERT LOCKYER.

Looking Back.

FROM

THE LANCET, *SATURDAY*, March 8th, 1828.

FOREIGN DEPARTMENT.

HOTEL DIEU, PARIS.

The trials made at the Charité to ascertain the effects of chlorine in cases of pulmonary phthisis, have not discouraged the physicians of other hospitals. Trials of this remedy have been made at the Hôtel Dieu by M. Husson. He directed that a woman, who had been attacked for some time with phthisis, should inhale this gas. The new remedy did not improve her condition, and the patient died.

HOPITAL DE LA PITIE.

Dr. Bally has lately employed strychnine internally in paralysis of the bladder, and has obtained from its use very decided benefit. Three patients have been cured in less than a month by this remedy, given in doses from one tenth of a grain, to two grains every four and twenty hours.

ARE FALSE TEETH NECESSARIES?—At the Taunton county court on Feb. 20th, before his honour Judge Beresford, Mr. A. P. Kendrick, dental surgeon, claimed £5 from a farmer for professional services rendered to his wife. The defence was that false teeth were not actual necessaries and therefore the wife should have obtained the husband's consent before being supplied with them. The defendant had recently separated from his wife. His honour decided that the teeth were actual necessaries and gave judgment for the plaintiff, with costs.

THE LANCET.

LONDON: SATURDAY, MARCH 10, 1906.

The Incidence of Cancer in Relation to Sex and Situation.

SEVERAL papers of great interest by Dr. W. S. LAZARUS-BARLOW and his co-workers in the Cancer Research Department of the Middlesex Hospital have recently been published [1] and they afford material for useful and thoughtful consideration in relation to the incidence of cancer as it affects different systems and organs in the two sexes. They comprise a careful statistical and analytical study of 6732 cases of cancer, of which records are preserved, occurring at the Middlesex Hospital between the years 1746 and 1904. Of these cases, 2073 occurred in males and 4659 in females, but these figures must not be regarded as representing the relative frequency of cancer in the two sexes, since there are considerably more beds devoted to cases of cancer in women than in men. It is, of course, only during the later years of this period that the nature of the growth has been confirmed by microscopical examination and although great care has been exercised in the selection of the cases Dr. LAZARUS-BARLOW is of opinion that it is advisable to include the cases under the general term of "cancer" rather than of carcinoma, although it is practically certain that cases of other than carcinomatous nature constitute a small percentage of error. Again, in regard to the question of age a certain reservation is necessary. The ages given in the records are neither those at which the disease first appeared nor those at death, but at some intermediate period which may be taken as that at which the disease made its existence known to the patient or at which it was first recognised. On analysing the cases Dr. LAZARUS-BARLOW finds that there is a general tendency for males to be affected by cancer at a later age than females, the mean age of incidence of cancer without reference to site in males being 55·2 years and that in females 49·9 years. The range of years over which cancer is most liable to occur is practically the same in both sexes—viz., 46–64; cancer of the prostate, however, forms an exception, occurring much later (between 55 and 74), although too much importance cannot be attached to this owing to the small number of cases (10 only) in the series. When the incidence of cancer in relation to the site of the primary growth is considered, some information of much interest is obtained. In males 80 per cent. of all cases of cancer occur in the alimentary tract, while in females 80 per cent. of all cases are found in the generative organs and breasts. When the cases of cancer of the alimentary tract are separately considered it is found that they are seven times as frequent in males as in females, while the cases occur at a distinctly later age in the former, the mean age of liability of males to cancer of the alimentary tract being 55 years and that of females 52·5 years. A further point of some importance is the statement that the difference in liability of men and women to cancer of the digestive tract progressively and uniformly diminishes as the seat of the primary growth is lower in that tract until in cases of cancer of the anus there is an actual preponderance of females (five males to seven females), although in virtue of the relatively small number of cases no great stress can be laid upon this individual exception to the general rule. In regard to cancer of the liver and bile passages the statistics are, of course, less to be relied upon than in those of other parts, owing to the probability that cases of secondary growth have been included as primary. In the same volume, however, there is a paper by Dr. H. A. COLWELL in which only the cases of malignant disease of the liver and bile passages observed in the post-mortem room have been studied. Dr. COLWELL finds that in 3300 post-mortem examinations there were 41 cases of primary carcinoma of the liver, 31 cases of primary carcinoma of the bile passages, while in 608 cases there were secondary growths in the liver. In Dr. LAZARUS-BARLOW'S statistics it was found that carcinoma of the liver and bile passages gave a higher mean age for females than for males—viz., 54·1 years as against 52·9. This in the light of Dr. COLWELL'S observations is entirely due to the later age at which women suffer from cancer of the gall-bladder and bile passages. When the cases of cancer of the generative organs are considered it is found that in both sexes these tend to be the earliest affected by cancer. The great preponderance of its incidence in this system in the female is very striking, since cancer of the female generative tract constitutes 45 per cent. of all cancer occurring in females, while cancer of the breast contributes another 37·8 to the total. The uterus is the site of the great majority of the cases of cancer of the female generative organs, since the figures for the vagina and the vulva do not differ greatly from those for the penis and the scrotum in the male. The uterine cases afford the earliest mean age of cancer in females—viz., 46·7 years—while the mean age for cancer of the vagina is three years later and that for cancer of the vulva six years later still. In both sexes the cutaneous system shows the latest tendency to the development of cancer, the mean age amongst men being 60·3 years and that in women 55·9 years. In regard to rodent cancer the mean ages were 58·2 and 59·3 years respectively in 119 male cases and 83 female cases. In regard to cancer of the larynx the figures are liable to the source of error introduced by the inclusion of cases primarily œsophageal in origin, but among 31 cases classified as cancer of the larynx 26 were in males, with a mean age of 55·9 years, and five were in females, with a mean age of 53·6 years. Dr. LAZARUS-BARLOW finds that his statistics afford no support to the view that the early or the late appearance of carcinoma at any given site is determined by the character of its epithelium, for although the skin in which the squamous variety is the commonest form affords the latest age incidence, and although parts of the alimentary tract lined by squamous epithelium are usually affected later than those

[1] Fourth Report from the Cancer Research Laboratories. Archives of the Middlesex Hospital, vol. v. London: Macmillan and Co. 1905.

clothed by columnar and spheroidal cells, yet the cervix uteri, vagina, scrotum, penis, and tongue give some of the earliest cases of carcinoma, and these of the squamous-celled variety.

In a second paper,[2] written jointly by Dr. LAZARUS-BARLOW and Dr. W. GORDON TAYLOR, certain other statistical conclusions are put forward. In order to determine if any variations in the incidence of cancer on the various organs have occurred or are occurring, the various cases of cancer in the Middlesex Hospital have been referred to the year in which they were 35 years of age and presumably healthy and cancer cases have been balanced against cases other than cancer. By this method the results have been obtained in a previous research[3] that in the case of women a steady increase in cancer mortality took place in the various years up to about 1870 but that since that time the mortality has remained stationary, while in the case of men a steady increase in cancer mortality has been taking place from the first and is still progressing. In the present paper the figures obtained for various sites have been analysed and the following conclusions have been arrived at: comparing healthy populations at the age of 35 at different periods in the nineteenth century an increase in the mortality from cancer has shown itself or is showing itself in the lip, tongue, floor of the mouth, cheeks, and œsophagus in males, in the stomach, colon, rectum, and anus in both sexes, and in the uterus and breast in females, while a diminution in mortality has occurred or is in progress from cancer of the lip, tongue, floor of the mouth, and the vulva in the female, and in cancer of the skin and rodent cancer in both sexes. On the whole it appears that the increase in cancer which is occurring according to the statistics of the Middlesex Hospital is distributed more or less evenly over all the principal primary seats of the disease and is not markedly associated with any one particular organ, although the alimentary tract shows a distinct increase in both sexes.

Although no startling generalisations have been afforded by these laborious statistical studies but rather a confirmation or correction of the views or impressions obtained by individual observers from smaller numbers of cases, yet the results are of considerable importance, as suggesting possible lines of research to investigate the variations observed and to explain them. The investigation of cancer is now rightly regarded as of such importance that no research which can even possibly afford a clue or in any way increase our knowledge can be neglected and we wish Dr. LAZARUS-BARLOW every success in the use he is making of the valuable records of the Middlesex Hospital, for in spite of the prejudice existing among many people against statistics, when properly studied they afford very valuable information.

The Trial of Pritchard, the Poisoner.

IN the series of volumes now being issued descriptive of "Notable Scottish Trials" that most recently published,[1] which contains the case of the infamous Dr. PRITCHARD, is of importance particularly to those interested in forensic medicine. More than 40 years have elapsed since PRITCHARD, in 1865, did to death his wife and Mrs. TAYLOR, her mother, and of those who took part as judges and counsel in the long and patient trial which ended in the sentence of death being passed upon him all have passed away except the veteran Lord YOUNG who, as Solicitor-General for Scotland, led for the prosecution, and Dr. DAVID BRAND, one of the junior counsel for the defence, now sheriff of Ayrshire. PRITCHARD was born in 1825 and apparently at the age of 15 years was apprenticed to a firm of surgeons at Portsmouth. His medical attainments do not seem to have been of a high order and it is doubtful to what extent his description recorded by himself in the Medical Directory can be relied upon, for his claim to have been educated at King's College, London, seems to have been proved untrue. His doctor's degree he purchased in 1857, *in absentiâ*, from the University of Erlangen. During the early part of his professional career he was an assistant surgeon in the Royal Navy, but he retired in order to practise ashore after his marriage and eventually settled at Glasgow. He was a man of good address and appearance, apparently amiable, and by no means unpopular among his wife's relatives. He at no time, however, took any high position in the esteem of his brother practitioners in the locality in which he resided; report said that he took a profligate advantage of his professional opportunities with lady patients; an insurance company refused to pay for damage done by a fire at his house and he did not make any serious attempt to insist upon compensation; in that fire a servant girl perished, and without being uncharitable towards one who has expiated proved crimes upon the scaffold it is impossible not to suspect that he was directly responsible for her death. At the time of their deaths both his wife and his mother-in-law must have been aware of a scandalous intrigue with a servant girl living in his house who had become pregnant by him and upon whom, in fact, he had procured abortion. His intimacy with this girl was put forward at his trial as supplying the motive for his crimes, and it seems, at any rate, reasonable to suggest that the desire to lead a life of lust without the restraint imposed by a wife's presence caused him to plan both murders. This he accomplished principally by the administration of antimony, which he bought in large quantities, purchases amounting to an ounce at a time of tartar emetic being made by him between November, 1864, and the completion of his design in March, 1865. He also bought large quantities of tincture of aconite which was proved to have been used in the case of Mrs. TAYLOR. This unfortunate old lady went on Feb. 10th to Glasgow from Edinburgh to nurse her daughter who had been seized with vomiting, violent pains, and cramp on Feb. 1st. She did so on the advice of Dr. J. M. COWAN, a retired medical man residing at Edinburgh, a second cousin of the patient, to whom PRITCHARD had written asking him to come and see his wife. Professor GAIRDNER (Sir WILLIAM TENNANT GAIRDNER), at that time Professor of Medicine in the University of Glasgow, was summoned also in attendance upon Mrs. PRITCHARD in consultation. Three days after her arrival at PRITCHARD'S house Mrs. TAYLOR was seized with vomiting after partaking of some tapioca and on the 25th she died. A third medical man, Dr. PATERSON, who had been called

[2] Loc. cit., p. 47.
[3] Archives of the Middlesex Hospital, vol. iii., p. 148.
[1] Trial of Dr. Pritchard, edited by William Roughead, Writer to the Signet. London: Sweet and Maxwell, Limited, 1906, pp. 343.

in to attend her and who had seen her daughter but had not advised with regard to her, was asked by PRITCHARD to certify the cause of Mrs. TAYLOR'S death but refused to do so, adopting a course which will be referred to hereafter, and her son-in-law himself took the responsibility, describing the cause of death as "Paralysis, 12 hours; apoplexy, 1 hour." Mrs. PRITCHARD died on March 18th and on the 20th her husband certified the cause of her decease as "Gastric fever, two months." This term he had always applied to her illness in speaking of it to the three medical men who had attended her. These now included Dr. PATERSON, who had seen her a second time after the death of Mrs. TAYLOR and had apparently from the first formed with regard to her a perfectly correct opinion that she was being poisoned with antimony but had said nothing to anyone on the subject.

At this point, therefore, we find Mrs. TAYLOR three weeks dead and safely buried, and Mrs. PRITCHARD dead, duly certified, and ready to be consigned to the grave and to oblivion. Her body had been removed to Edinburgh for interment beside that of her mother, and PRITCHARD had accompanied it thither to have the coffin opened for the inspection of his wife's relatives and to kiss her dead lips in their presence! Meanwhile, however, an anonymous letter, since attributed to Dr. PATERSON but denied by him, had reached the Procurator-Fiscal and had set moving the avalanche that was to overwhelm the murderer. Once in motion it did not take long to gather weight. His wife's body, saturated with antimony, lay unburied and her mother's, similarly impregnated, only required the order of the proper authority for its exhumation. Post-mortem examination followed by chemical analysis proved the presence of the drug and the murderer's certificates as to the cause of death were disproved conclusively. The particulars given by PRITCHARD upon Mrs. TAYLOR'S death-certificate and many other statements made by him were contradicted by the evidence of eye-witnesses. Purchases of large quantities of antimony and of aconite were shown to have been made; antimony was found in the remains of the tapioca referred to, in a bottle from which Mrs. TAYLOR was in the habit of taking an opiate and elsewhere, and in Mrs. TAYLOR'S opiate there was also present aconite, this lady's symptoms being proved to have been characteristic of poisoning by that drug, as well as of poisoning by antimony. The late Sir DOUGLAS MACLAGAN, Professor of Jurisprudence in the University of Edinburgh, his assistant, Dr. ARTHUR GAMGEE, F.R.S., and Dr. (now Sir) HENRY DUNCAN LITTLEJOHN, marshalled the scientific evidence upon these points with convincing clearness and force, the poisoner's ultimate confession being rendered superfluous for all thinking persons. The whole mass of evidence is given in Mr. ROUGHEAD'S highly interesting book; it is sufficient to say here that it was overwhelming. The case of PRITCHARD is therefore of particular interest to medical men, as it shows how completely murder by poisoning can be established by scientific evidence. The jury deliberated for less than an hour and returned a verdict of guilty of both crimes without a dissentient opinion.

If, however, the fact that PRITCHARD committed these two murders was clearly proved by well-marshalled and admirably prepared medical testimony when once suspicion fell upon him, it will be observed that he might have escaped being suspected. We have referred to the anonymous letter and to the conduct of Dr. PATERSON, upon whom some blame fell for having entertained the opinion that a crime was being perpetrated and for having done nothing effective to prevent it. When Mrs. TAYLOR died, whom he had seen once, he refused to certify the cause of death; but he wrote to the registrar a letter which, from his own account of it, was calculated to arouse suspicion, ending with the phrase, "The death was sudden, unexpected, and to me mysterious." This letter, of course, was duly signed. Nothing came of it and the conduct of the registrar, who had destroyed it, in subsequently accepting the certificate of PRITCHARD does not seem to have provoked much comment at the trial. The anonymous letter, whoever may have written it, was addressed to a very different official, the Procurator-Fiscal, and although unsigned and couched in somewhat vague terms bore immediate results. The Lord Justice-Clerk expressed, in his summing up, profound disapprobation of Dr. PATERSON'S silence, saying: "I care not for professional etiquette or professional rule. There is a rule of life and a consideration that is far higher than these, and that is the duty that every right-minded man owes to his neighbour to prevent the destruction of human life in this world, and in that duty I cannot but say Dr. PATERSON failed." These weighty words were endorsed then, as they will be now, by the medical profession. It is no part of the medical man's duty to go out of his way to play the detective, but he owes a duty to his patient the essence of which is the protection of his or her life. He owes no less a duty to every fellow citizen, whether his patient or not, whose danger becomes apparent to him. His duty may be a difficult one to perform, it may involve personal inconvenience, grave anxiety and responsibility, or even personal danger to himself, but if he shirks it he will be rightly blamed. The full text of Dr. PATERSON'S defence of his own conduct may be studied among the appendices collected by Mr. ROUGHEAD and a very caustic reply to this document will be found in a leading article in these columns published on July 22nd, 1865. From a professional point of view Dr. PATERSON'S attitude formed one of the most interesting features of the poisoner PRITCHARD'S trial.

PRITCHARD was a calculating and cruel villain, finding his parallel in PALMER, who no doubt committed more murders, but who, like PRITCHARD, poisoned his wife and his mother-in-law; and the two with LAMSON make a notable trio. But the medical profession before grieving over its connexion with such monsters may remember that the three cases are alike in this—the unerring science of the profession which they had disgraced brought them to the gallows, and the fact that they were members of our body so far from affording them facilities for perpetrating their crimes with impunity, served rather to assist in bringing home their guilt to them.

Repeated Cæsarean Section.

CASES of Cæsarean section repeated on the same patient are of relatively infrequent occurrence. There are several reasons which may be put forward in explanation of this fact. The chance that the patient has been sterilised at the first operation, the likelihood of a subsequent pregnancy terminating prematurely, and the deliberate avoidance of pregnancy may all explain the rarity of such operations. A number of cases, however, have been recorded by various writers on this subject and M. FRUHINSHOLZ recently read before the Society of Obstetrics, Gynæcology, and Pædiatry in Paris the details of a case in which Cæsarean section had been performed three times on the same patient. In her first two labours the woman had been delivered after craniotomy, whilst in the third and fourth Cæsarean section had been practised. In the fifth pregnancy the membranes ruptured at the eighth month and it was decided to perform Cæsarean section. Very numerous adhesions were found to be present between the uterus and the abdominal walls. The child weighed 1800 grammes and was extracted alive. A sixth pregnancy terminated by an abortion. The case of this determined lady offers a good text for a few general remarks.

There are several interesting and important questions to be considered in these cases of repeated Cæsarean section. The most difficult one to come to a decision upon is whether the operator is justified in allowing the patient to run the chance of again becoming pregnant. Should he or should he not endeavour to sterilise the woman by some such procedure as removing the uterus, or ligaturing the Fallopian tubes, or the more certain method of excising a portion of the tubes? In all instances the final decision in such a case naturally must rest with the patient or her husband. We consider that it is the duty of the surgeon to place before her the risk of her baby being stillborn or dying subsequently, and also the risk she runs in submitting to another Cæsarean section. When we take into account the very low mortality attending a Cæsarean section at the present day, when performed as an operation of election, we do not think that any surgeon is justified in recommending a patient to be sterilised or in taking steps to insure this result, except at the express desire of the patient or of her husband, and only then if he has done his best to dissuade them from such a decision. The recorded cases show that the performance of a second or a third Cæsarean section is a very safe procedure. In 62 cases collected by Dr. ARTHUR J. WALLACE there were only four deaths, or a percentage mortality of 6·45. If we examine the details of these four fatal cases more closely we find that two of them occurred in the year 1884; and of the other two in one the uterus was not sutured and in the other a small wound of the intestine occurring at the time of the operation was overlooked. We, therefore, safely may conclude that at the present day the results would be even more favourable. The difficulties of the operation depend to some extent on the question as to whether adhesions to the anterior abdominal wall are present or not and whether they are sufficiently widespread to enable the subsequent operations to be conducted without opening the peritoneal cavity. Dr. WALLACE gives some interesting details upon this point. Of 43 cases in which the presence or absence of adhesions is mentioned, in 11, or 25 per cent., adhesions were practically absent and in the remaining 32 cases, or almost 75 per cent., marked adhesions were found. In only three of these cases, however, were the adhesions so widespread as to make the subsequent operation absolutely extraperitoneal in character. In five other cases they were absent over a very small area, so that the repeated operation was not entirely extraperitoneal.

In cases where the patient is not sterilised, in view of the possibility of future pregnancies an attempt should be made to insure the formation of extensive peritoneal adhesions. Unfortunately, we have no certain method of obtaining this desirable result. The manner in which the densest adhesions disappear is the wonder of the surgeon, when he reopens the abdomen after a previous abdominal section in which there may have been the most extensive matting of the various structures. The permanence or otherwise of peritoneal adhesions would appear to depend on the degree to which the endothelium of the peritoneum itself has been damaged. If it be irrevocably destroyed then the chance of more or less permanent adhesions forming is very considerable. At the same time, we must bear in mind that the destruction of the endothelium greatly increases the danger to the patient, since it allows of the ready absorption by the vessels of any organisms or toxins which may be introduced into the peritoneal cavity. The presence of other than complete utero-parietal adhesions renders a subsequent operation more rather than less dangerous. Their separation may prove tedious and difficult or lead to injury of the intestine, especially if the adhesions involve the bowel. The necessary manipulations may also lead to the occurrence of post-partum hæmorrhage or to hæmorrhage from the tearing of vessels in the new tissue. If the attempt, therefore, to obtain complete adhesion of the anterior surface of the uterus to the abdominal wall fails the danger to the patient may be increased rather than diminished. Some authors contend that the formation of such adhesions indicates that the asepsis of the operation has been defective. This may be so but the observations of Professor WELCH have shown that even from wounds running an aseptic course an organism, the staphylococcus albus, may be cultivated with considerable frequency. It is, however, certain that mere trauma may cause the formation of adhesions in the peritoneal cavity, and in future if the view that these patients should not be sterilised in ordinary circumstances be adopted it will no doubt become more and more the aim of the operator to set up such utero-parietal adhesions. M. FRUHINSHOLZ asks if the presence of the adhesions in his case did not play a part in producing the abortion in the sixth pregnancy? Possibly this may have been so but, as he rightly observes, the union of the uterus to the abdominal wall in these cases is not comparable to that obtained in the operation of ventrofixation of the non pregnant uterus. The general trend of opinion amongst practically all the leading obstetricians in different countries at the present time is towards the extension of the indications for the performance of Cæsarean section in cases where the life of the child is likely

to be endangered if delivery be attempted *per vias naturales*. If such a view is to be acted upon generally then it will be incumbent upon the operator to consider very seriously his duty to the mother and to her unborn child and to hold well defined views upon the moral questions which are involved in the decision of the patient for or against sterilisation and upon the further surgical question which arises if she decides to run the risk of another Cæsarean section whether he is to aim at the production of extensive utero-parietal adhesions or not. As we have indicated, our opinion is that the surgeon unless in very exceptional circumstances should advise against sterilisation, and as the danger of any subsequent operation of the same kind would appear to be lessened by their presence he should aim deliberately at the production of extensive utero-parietal adhesions.

The Feeding of Children attending Public Elementary Schools.

ON March 2nd the Education (Provision of Meals) Bill passed its second reading in the House of Commons and was referred to a Select Committee. We have upon previous occasions[1] commented on the report of Lord LONDONDERRY'S Inter-departmental Committee which was appointed to consider certain points arising out of this question, and there is without doubt a consensus of opinion that it is mere waste of time and energy to try to teach a starving child. But the discussion of the question involves the consideration of problems which affect the very foundations of our present social order, and although these questions are outside our province yet we cannot consider the main question without at least a reference to such problems. The Bill now before the House of Commons is very short—in fact, for all practical purposes it consists of one clause, for the first clause deals with the short title and construction. The operative clause is Clause 2, "the principal Act" being the Education Act of 1902, as extended by the Education (London) Act, 1903. Clause 2 runs as follows:—

> When the local education authority, for the purposes of Part III. of the principal Act, resolve that any of the children in attendance at any public elementary school within their area are unable by reason of lack of food to take full advantage of the education provided for them, the local education authority shall take such steps as they think fit to provide food for such children (and, if the local education authority think fit, for any other children in their schools) under such regulations and conditions as the local education authority may prescribe, including, if they so resolve, the making of a charge to recover the cost from the parent or guardian, provided that no provision of food under this Act shall be deemed to be parochial relief.

The debate in the House of Commons was of great interest and among many noteworthy speeches the most noteworthy were those delivered by Sir HENRY CRAIK, Sir WILLIAM ANSON, Dr. MACNAMARA, and Mr. BIRRELL respectively. The first-named laid great stress upon what is apparently a blot upon the Bill—namely, that any children in the schools might be fed by the local authority. We have used the word "apparently" because we think it possible that the framers of the clause had in mind the cases to which Sir WILLIAM ANSON referred in his able criticism of the Bill—namely, those of parents who are unable to feed their children, not because of unwillingness to do so or because they cannot afford to do so, but simply because they themselves have to be out at work all day. Dr. MACNAMARA, whose personal experience as an elementary school teacher and a member of the late London School Board entitles him to be listened to on this matter with every respect, was very insistent upon the necessity for strengthening parental responsibility. He gave an outline of his own personal proposals as follows:—

> The scheme of those who favoured the provisions of this Bill was to feed the child and then to pursue the parent. Personally he would take all the poorer areas of great towns and schedule them, linking the schools in those areas by half dozens. He would then provide a central dining hall for each group of six schools and give the parents notice that they could go to the offices of the local authorities and buy a book of dinner coupons. They should pay for them if possible; if they were unable to pay they should receive them gratuitously to give them to their children to procure one square meal, instead of permitting them to slouch about the streets picking up the garbage in the gutters. The teachers and attendance officers should also have coupons to give to the children; and when they had provided all this machinery then they should pursue the parent for all that he was worth. If the parent was a drunken, worthless person, then whip him at the cart tail.

Dr. MACNAMARA proceeded to mention the *cantines scolaires* which exist in Paris and provide eight million meals for £75,000 (of these more anon). Such a scheme in London, he calculated, would not cost the rates a farthing in the £. We cordially agree with much that Dr. MACNAMARA said, but his economical estimate fails to reassure us. We can all remember the time when the education rate was never to be more than 3*d*. in the £. It is now 1*s*. 7*d*. However, that point is not exactly within the scope of THE LANCET. Nor are we here concerned with the conflicting social principles as to whether the State or the parents should be responsible for the feeding of children whom the State compels to go to school. The main point is the absolute necessity, on grounds of health, that children attending school should receive suitable food, if the attempts to educate them are not to be made of no effect, and if the physique of the coming generation of adults is not to suffer from the attempts to improve its mental capacities. The Bill leaves it in the hands of the local authority "to take such steps as they think fit to provide food for such children (and, if the local education authority think fit, for any other children in their schools) under such regulations and conditions as the local education authority may prescribe, ..." The various local authorities will have no easy task. Unless all school children are to be fed indiscriminately there is the question of the selection of recipients. Then there is the organisation for the distribution of the meals. The London teachers have done admirable work in voluntarily assisting in the distribution of meals to school children, but since the education committee of the London County Council has decided that they shall assist as part of their teaching duties they are naturally feeling injured. Another point is that there will have to be some visitation of homes such as is undertaken by the members of the *caisse des écoles* in France in order that parents who are in real want may be separated from those who are merely shiftless and drunken, and that in either case the children should not suffer. Another point occurs which may seem to be

[1] THE LANCET, Dec. 2nd, 1905, p. 1629, and Jan. 20th, 1906, p. 174.

sentimental but it is one of real importance to a child: some measure should be taken so that a child who is fed because his parents are unable or unwilling to feed him should not be earmarked by his schoolfellows either as a black sheep or as lower in the social scale than themselves. Everyone will recollect LAMB'S tale of the Bluecoat boy who gathered scraps really destined to feed his parents and the undeserved sufferings to which he was subjected by his schoolfellows, because they considered him to be either unwarrantably hungry or else to be making money by the sale of the said scraps.

Mr. BIRRELL, the new Minister for Education, seemed to favour some attempt to imitate the Parisian *cantines scolaires*. What had been done in Paris, he urged, London should also be able to do. In Paris 10,500,000 meals had been served in 1904 and he thought that a large proportion of them had been paid for by the parents. We may point out with legitimate complacency that long ago we foresaw the importance of the object-lesson given by this great French experiment. Consequently we sent our Special Sanitary Commissioner to make full inquiries on the spot. His report constituted, we believe, the first complete history of the origin and development of the *cantines scolaires* that has appeared in the English language. It was published in our issue of Sept. 17th, 1904, p. 860, and has since constituted a sort of text-book from which innumerable quotations have been made—for the most part unacknowledged—at the public meetings and conferences where the question of meals for school children has been discussed. The difficulty, so far as England is concerned, is that the *cantines scolaires*, as fully explained by our Commissioner, arose out of the *caisse des écoles* or school funds, founded for the promotion of education and recognised by the State so far back as 1867. The friends of education who deal with these funds have evolved with the times and are now acknowledged representatives of a public need. They are non-sectarian; they eschew all idea of patronage. They are inspectors elected by all and sundry who hold the cause of education sufficiently sacred to subscribe 10 francs or more towards the school funds. No such instrument for the administration of the school kitchens exists in England, so that the Parisian method cannot be imitated in its entirety. Still no system has been more successful in maintaining and developing the sense of self-respect and dignity among the children. While theorists squabble over the almost impossible task of reforming worthless parents, the French school authorities have concentrated their energies on the more hopeful task of dealing with the children, endeavouring to protect them from baneful home influences. Mr. BIRRELL thinks that London should be able to do all this as well as Paris. It will be difficult and that, perhaps, is only an additional reason for setting to work in real earnest. The Bill is now referred to a Select Committee and we may hope that the various points to which we have alluded will be considered in detail. In the report and the minutes of evidence of the Inter-departmental Committee appointed in 1905 by Lord LONDONDERRY the members of the Committee will find the opinions of those best qualified to speak on the subject, and in our columns they will find a full and easily comprehensible description of the *cantines scolaires*.

Annotations.

"Ne quid nimis."

"TABLE D'HÔTE CONSULTATIONS."

"SOME years ago," writes an Italian correspondent, "THE LANCET[1] drew attention to a practice as dangerous and 'irregular' as it is (or was) but too common—that of asking and receiving medical advice across the pharmacist's counter—and it illustrated its remarks by a disastrous and all too typical case which occurred on the Neapolitan Riviera when an overdose of aconitum napellus 'wrought the well-nigh instantaneous deaths of both parties to the transaction—the "patient" who asked to be prescribed for and the "consulting pharmacist" who had the "courage of his prescription" and experimented on himself with the fatal dose.' Since then, in such centres as Rome, Florence, Bologna, Milan, and other north Italian cities, the law imposes severe penalties on contravention of the statutory conditions under which the pharmacist carries on business and though the said law is even yet notoriously contravened the contravention is generally restricted to cases of trifling import, far removed from such 'playing with edged tools' as ended so tragically in the Neapolitan suburb. There is, however, another form of 'irregular' practice which the law is powerless to reach—practice for which the 'patient' is primarily to blame and of which he (or more often she) must abide the consequences, as the 'consultant,' invariably an amateur, owes allegiance to no school but that of his (or her) individual experience. I allude to what an Italian journalist has aptly called 'Table d'Hôte Consultations' or 'Winter Garden Prescriptions,' exemplified in such cases as the following. An invalid alights at a hotel in one or another of the largely frequented health resorts on the Mediterranean seaboard and having called in the duly qualified practitioner resident in the place is skilfully examined and properly advised as to his ailment, the advice being usually accompanied with a carefully considered prescription. That same evening the patient finds himself beside an affable and communicative inmate of the hotel, in the winter garden or at the table d'hôte, and in the course of conversation discloses the object of his visit to the place and the symptoms of which he complains. His auditor, oddly enough, has come for the very same reason; indeed, this is his third or fourth visit, which is by no means *motivé* by any medical advice to be had on the spot. Oh, dear no! The remedial or restorative virtues of the climate are of themselves sufficient to give and maintain health and the physician's prescriptions are as unnecessary as his fees are high. Personal experience, reinforced by that of others 'who had just the same symptoms,' is pressed into the discussion with the result all too common that the new arrival is as easily persuaded as any convert to 'Christian Science,' the physician is ignored, and his prescription silently dispensed with almost as soon as it is dispensed. No *habitué* of a hotel or pension of invalid resort in the 'Sunny South' but can recall many such cases as that reported above, while physicians of all nationalities have often to find themselves (unwittingly) repeating a prescription by which the now disillusioned patient might long before have benefited at the hands of the colleague originally called in. The distrust born of ignorance or inexperience in weakly constituted minds, often instigated, moreover, by false economy, accounts for the readiness with which so many of the invalid public fall victims, in their sojourn abroad, to the glamour of the self-important, officious

[1] THE LANCET, June 5th, 1897, p. 1568, and March 5th, 1898, p. 685, under the heading "Cross-Counter Therapeutics."

amateur always to be found in fashionable, generally idle, 'society.' Such victims, indeed, would be more frequent than they are but for the temptations they offer to the satirist whose humour knows but the one restraint of compassion—compassion for the evil, sometimes tragic, consequences of the 'practice' which he ridicules."

LOATHSOME BED "STUFFING."

THE following story has quite recently reached us from a correspondent: A fairly large manufacturer, he writes, told me (and made no secret of the fact) that at his mills they took in a large quantity of old clothes. These had the buttons, &c., removed and were at once turned into "flock" without any washing or disinfecting whatever, and used in that state to make cheap new mattresses. For higher price mattresses they wash this "flock" under heavy rollers, and all made with this "stuffing" are stamped "guaranteed washed filling." We are quite prepared to credit this story, for two years ago we referred to a paper read before the Congress of the Sanitary Institute in Glasgow by Mr. Peter Fyfe, entitled "What People Sleep On," in which the writer showed that a certain section of the bed-making trade made mattresses from a mass of rags rejected by every class of the population. There was no attempt to disinfect these rags or even to clean them. In 1905 the Home Secretary was asked a question on this subject and his astounding reply was: "The compulsory cleaning of the materials referred to could not be generally secured under the existing law. The point has been noted for consideration but I cannot at present hold out any prospect of legislation on the subject." If ever an opportunity presented itself to our new legislators of convincing the country of their concern for the public health this is surely one. So far as we can discover, no steps have been taken and the filthy practice goes on unchecked and sanitary officers are powerless to interfere. The horse in the stable is much better looked after, for at least it is provided with clean straw or a clean cork litter. This scandal demands instant suppression and we commend to the Government the desirability of prosecuting an immediate inquiry into this disgraceful breach of common hygienic principles. Little wonder that the dissemination of disease is so often obscure and that it is frequently found in the poorer districts that the bed of the patient emits a foul and sickly smell.

FEBRUARY AT HOME AND ABROAD.

IN almost all parts of this country and at most of the foreign resorts the weather of last month was both wetter and colder than during the corresponding period of 1905. The most striking difference, however, was in these islands, especially at Torquay, where the average temperature a year ago was 3° higher than it was last month. It is gathered from the annexed table that the difference in the average warmth between the centre of England and Algiers during the past month was 15·5° F., while the difference between the former regions and Nice and Florence was only 5°. The mildest spot in the United Kingdom, the Scilly Isles, was just equal to Rome in average warmth and far superior to it in the warmth of the average night, being equal in that respect to Biarritz. At Scilly and Algiers the sheltered thermometer descended no lower than 36°, but at all the other resorts, except at Palermo and Naples, which narrowly escaped, more or less frost was experienced. So cold were the nights at Nice that the average minimum temperature was only 2° above the freezing point, the same as in London, and 2° and 3° lower than at Torquay and Jersey. At all the southern stations except Florence the temperature of the afternoons was higher than in any part of this country; Nice and Biarritz both recorded a mean daily maximum of 50°, while Rome and Naples were a trifle warmer, and Lisbon, Palermo, and Algiers much warmer. The afternoons in Algiers were as warm as those generally experienced at the end of April in London and on the south coast of England and the nights were as mild as those in London towards the end of May. The most equable temperature on the continent was at Biarritz, Naples, and Lisbon, where the small range of 10° or 11° was just the same as that on the south-west coast of these islands and at London. As usual, however, none of the stations, whether at home or abroad, could vie with the Scilly Isles, where the greatest difference of temperature during the whole month was no more than 16° and the average difference between the day and night was only 8°. The wettest spots abroad were Biarritz, with the excessive rainfall of 10·29 inches and with 21 days on which the rain gauge yielded at least 0·04 inch, and Palermo, where 17 days with rain gave the large total of 7½ inches. At Florence rain only occurred on ten days, at Lisbon on seven, and at Nice on no more than five. The wettest parts of our own south-west coast were very dry when compared with the south-west of France, Palermo, and Algiers. About the middle of the month the precipitation sometimes took the form of sleet or snow in the Riviera and north of Italy, and the south-west of France occasionally experienced severe thunderstorms accompanied by hail.

Stations.	Highest temperature.	Lowest temperature.	Mean maximum.	Mean minimum.	Range.	Mean temperature.	Total rainfall in inches.
Nice	57	28	50	34	16	42·0	1·81
Biarritz	64	30	50	40	10	45·0	10·29
Florence	57	25	48	36	12	42·0	3·71
Rome	57	30	51	37	14	44·0	4·93
Naples	57	33	51	41	10	46·0	5·28
Palermo	72	34	57	43	14	50·0	7·50
Algiers	75	36	59	46	13	52·5	5·66
Lisbon	65	30	56	45	11	50·5	1·50
Paris	55	23	44	32	12	38·0	1·27
London	50	27	45	34	11	39·5	1·65
Scilly Isles	52	36	48	40	8	44·0	3·92
Jersey	52	32	48	38	10	43·0	3·67
Torquay	52	30	47	37	10	42·0	3·81
Bath	51	22	45	32	13	38·5	2·10
Nottingham ...	49	22	43	31	12	37·0	2·03

THE DEATH OF PROFESSOR S. P. LANGLEY.

THE death of Professor Samuel Pierpont Langley, late secretary of the Smithsonian Institution at Washington, is a grievous loss to physical science. The public will associate his name perhaps more prominently with his practical experiments on flight or aero-dynamics and his popular expositions of astronomy than with his purely physical researches. His name will probably endure most in connexion with his invention of an exceedingly ingenious and delicate instrument for the detection of very minute changes of temperature which is known as the bolometer. It was an adaptation of Wheatstone's bridge, into the branches of which a number of slender wires of steel and platinum are inserted. These wires have equal resistances at the same temperatures, but if one section of the wires is heated the resistance to the current is increased. The galvanometer placed in the bridge which is at rest when the two sets of wires are at the same temperature, is deflected in consequence of the difference in intensity of the currents flowing in opposite directions in the bridge. The instrument, it is said, will accurately

register a change in temperature of one-millionth of a degree Centigrade and is sensitive to the heat of a candle one and a half miles distant. The instrument has thus been the means of revealing rays where no rays had been thought to exist. Professor Langley was a D.C.L. Oxford and D.Sc. Cambridge and was well known in literary and scientific circles in this country.

THE EMPIRE'S SCHOOL OF TECHNOLOGICAL SCIENCE.

IN a letter addressed to Lord Rayleigh as President of the Royal Society and published in the *Times* on Wednesday last Professor E. Ray Lankester calls attention to the fact that with the abolition of the present Royal College of Science in favour of the new technological institution the present means of research and training provided at the old college in the higher branches of biological science threaten to be suppressed. As Professor Ray Lankester points out, the Royal College of Science as at present constituted provides laboratories, professorships, original investigations, and systematic teaching in several subjects not embraced in the departmental scheme for a new institute of applied science, and these subjects are zoology, botany, geology, and astronomical physics. Every scientific man must admit that biological science at any rate has a very important bearing on many branches of technology. The agricultural industry need only be mentioned as an example of a pursuit the future of which must depend very largely on biological knowledge. We are hardly willing to believe that it was the intention of the Departmental Committee to omit the important subjects mentioned by Professor Ray Lankester from the great national scheme of technological education. At all events, we may safely leave Professor Ray Lankester's appeal in the hands of the Council of the Royal Society, the members of which are bound to acknowledge the claims of the subjects set out and thereupon to urge upon the Government the importance of including the pursuit of biological research amongst the studies in applied science already provided for in the new scheme.

APPENDICOSTOMY.

Ex appendice semper aliquid novi and the most recent novelty is appendicostomy. Yet, after all, it is not so very new, for the first case was reported by Dr. Robert E. Weir of New York in August, 1902, so that it has been known about four years. This first case was hardly intentional, for Dr. Weir had opened the abdomen for the purpose of making an opening into the cæcum, when the appendix appeared and seemed to offer itself as more suitable for the purpose. The appendix was brought to the surface and opened. The operation was performed a few times in this country but it excited little attention until Mr. C. B. Keetley read a paper on the subject last year at the Leicester meeting of the British Medical Association and now the subject has been brought prominently before the profession by the appearance in THE LANCET of Feb. 17th, p. 419, of an article on Appendicostomy by Sir William H. Bennett. One of the most striking points about the operation is the ease with which it is performed. Local anæsthesia or gas and oxygen will suffice for the first portion of the operation when the appendix is drawn through the abdominal wall and no anæsthetic is needed when the appendix is opened. Already many uses have been found for appendicostomy. The first that suggests itself is the flushing of the large intestine in mucous colitis, dysentery, and other forms of inflammation of the colon. It has also been employed with success for intractable constipation. Other indications appear to be certain forms of severe intestinal distension and for the local treatment of some forms of ulceration of the lower part of the ileum it may perhaps be used. Appendicostomy has also been suggested by Sir William Bennett as a means of administering nourishment in cases where nutrient enemata are now employed, and as the area for absorption would be vastly greater than in rectal feeding we should imagine that the result would be much better, but we have not yet heard of any case in which this operation has been employed for this purpose. There is one point that seems to be of importance and that is, that once the opening is made there is no necessity to close it, for the aperture of the appendix does not leak but it remains available at any future time when need may arise. It is possible that some amount of contraction or even obliteration of the opening may occur after a time. At last, it may be said, a use has been found for the appendix. Blamed as it has been for many years as not only a useless, but a harmful, vestigium, it cannot fail to be a cause of satisfaction to the appendix to be rehabilitated in public estimation as a convenient and even valuable side entrance to the large bowel.

THE HEALTH TEMPLE AT COS.

IN the fifth century B.C. there were two great schools to which the world looked for its masters in the healing art—the School of Cnidos and the School of Cos. Of these the latter is much the more famous, thanks to its inspiring head Hippocrates, revered in his own time as possessing a more than human share of the "mens divina" and respected even in the day now passing as the "Father of Medicine." This high distinction he owes to his undoubted priority in basing the medical art upon nature-study, a priority conspicuous not only in his clinical methods but in his enlightened views on the effects of "air, water, and locality" as causes or conditions of health and its opposite. Thus far in advance of his time he had still, however, to accept the world as he found it and to approach his patients and to address his pupils in recognition of the theocratic opinions and usages then prevailing, to treat the former and to instruct the latter in a temple dedicated to Asclepios, with whose priestly *personnel* he had to work in harmony. On this side of his professional activity much light has of late years been thrown by archæologists, among whom, in the British Isles at least, no one has made more scholarly or more memorable investigations than the emeritus professor of physiology in the University of Liverpool, Dr. Richard Caton, sometime dean of faculty in that school. To his monographs on the "Medicine and Medicine God of the Egyptians" and on the "Temple and Ritual of Asclepios" he has now added another not less able and interesting on the "Health Temple at Cos." Delivered as a lecture on March 2nd at the Royal Institution, it brought vividly before the audience the scene of the life-work of Hippocrates and gave due credit to Mr. W. R. Paton and Mr. E. L. Hicks, authors of the "Inscriptions of Cos," for having fixed the site of the magnificent Coan sanctuary and for having thus prepared the world for the supplementary investigations begun three years ago by Professor Rudolf Herzog of Tübingen and his coadjutors. To these accomplished and indefatigable archæologists belongs the sole credit of bringing to light the remains of the long-vanished temple and precinct known as the "Asclepieion," or Health Temple, the disposition and architectural details of which occupied the remainder of Dr. Caton's lecture. An abstract of the lecture is published at p. 695 of our present issue, and we congratulate its author on the skill and the scholarship with which he has made so much technical and recondite matter available for the history of medicine. In the busy professional world there are not many who have the leisure or the qualifications requisite for such fascinating studies which to many minds represent, however regretfully, an "interest outworn." But

not even the "Dii majorum gentium" of modern medicine will grudge the applause due to the votary of those studies of whom it may be said—

"Victrix causa Diis placuit, sed victa Catoni!"

THE GENERAL MEDICAL COUNCIL.

A MEETING of the Executive Committee of the General Medical Council was held on Feb. 28th, Dr. Donald MacAlister, the President, being in the chair. There were present Sir Hugh R. Beevor, Sir John Batty Tuke, Sir Patrick Heron Watson, Sir Christopher J. Nixon, Sir William Thomson, Dr. P. H. Pye-Smith, Dr. A. H. Young, and Mr. C. S. Tomes. A considerable amount of routine business was done. The treasurers laid before the Executive Committee the receipts and expenditure of the Council and its branch councils, its committees, and dental fund for the year 1905, with an approximate statement of assets and liabilities upon the last day of that year. The assets and liabilities are very clearly set out and the general balance-sheet shows no very flourishing position. The effect of economical administration is obviously having influence, but as the Executive Committee at its meeting approved of the site committee taking steps for the enlargement of the council chamber by arranging "for the erection of an addition thereto on the part of the site vacated by the Council's tenants," the present position may not be long maintained. A table showing the results of the competitions in the Royal Army Medical Corps for the year was presented and has been referred to the General Medical Council for consideration. An application was heard from the Government of Nova Scotia that Part 2 of the Medical Act of 1886 might be applied to that province, and the Executive Committee held that the provisions of the revised statutes of Nova Scotia, 1900, with regard to the recognition of British qualifications afforded a just basis for medical reciprocity.

LAY SPECULATIONS ON PHYSIOLOGICAL QUESTIONS.

THE discussion of physiological questions, and more particularly of those which relate to the digestibility, assimilability, and virtues of foods, is very often a feature of conversation at dinner and is suggested in fact by the process of dining itself. A good deal of physiological nonsense on these occasions is volunteered; many of the statements made are based on hearsay, while if there happens to be present one who has some professional knowledge of the subject he is largely appealed to by those who exhibit a great concern as to their physiological requirements. Occasionally to the lay mind a knotty problem presents itself and it is highly amusing to listen to the many views which are expressed. Some views, it is true, are intelligent but that is not always the case, nor can it reasonably be expected. Our observations on this subject are prompted by a question put to us by a lay correspondent who evidently with others has had his soul vexed over a contention raised at a social gathering as to whether the human body weighs lighter or heavier after the partaking of a good meal. This is not the first time by any means that this question has been put to us and we have not the slightest doubt that it has been propounded to many a medical man by his patients. The answer is, of course, simple, for as a rule the weight of food ingested in a given time greatly exceeds the output during that time of waste products. Thus a man may consume for dinner a pound or two pounds of food in, say, an hour. In that time his average loss by the excretion of waste products would be about six ounces from all sources, so that during the time of the meal he would be adding to his weight by the weight of the dinner less the weight of the waste products excreted. The net gain in weight would therefore be ten ounces if his dinner had originally weighed one pound, or one pound ten ounces if his dinner had weighed two pounds. But the waste products lost during the meal would be entirely due to respirable products which amount to about 50 per cent. of the whole output, so that the gain in the given time would be greater. Doubtless some confusion has arisen in the lay mind on this point from a consideration of the fact that taking the profit and loss on a day's account there is generally a slight gain in the case of a man who takes an abundant diet and at the same time rests, while in the case of a man who takes the same diet and leads an active out-door life there is invariably a slight loss at the end. Food is, of course, partaken of at a quicker rate than it is resolved into metabolic products and for a short time there must be a gain in weight due to this food, but sooner or later this gain is lost by the excretion of waste products. A charge of coal pitched into the furnace necessarily adds for a while weight to the steam engine, but sooner or later this gain is lost as the coal is consumed and converted into oxidised or waste products.

FACIAL PARALYSIS AT THE AGE OF EIGHT MONTHS.

IN the *Archives of Pediatrics* for January Dr. J. H. W. Rhein has published a case of paralysis of the facial nerve at an unusually early age. A female infant, aged eight months, was taken to hospital on Oct. 3rd, 1905. The history was that she was in good health until Sept. 23rd, when she developed an abscess under the chin on the right side. This was incised on the 26th and on the following day the mother noticed that the child was unable to close the right eye and that the mouth was drawn to the left. On examination complete right-sided facial paralysis was found. Nothing else abnormal could be found in the nervous or other systems. The paralysed muscles gave the reaction of degeneration. Dr. Rhein thinks that the paralysis was due to extension of the inflammation to the nerve from the abscess. Facial paralysis is rare under the age of ten years. Sir William Gowers states that he has seen two cases in the second year of life. Sachs mentions a case of rheumatic facial paralysis in a child aged nine months. Henoch reports a case in a child, aged two years, due to pressure at the stylo-mastoid foramen by an abscess of the lymphatic glands of the neck.

THE INSTITUTE OF MEDICAL SCIENCES.

THE munificent gift of £10,000 by the Goldsmiths' Company to the University of London towards the fund for the Institute of Medical Sciences brings the realisation of the policy of "concentration" perceptibly nearer. As is well known, the University has decided to establish, as soon as funds are available, a school of preliminary medical science, including anatomy and physiology, at South Kensington. Towards the building fund the contribution by the Goldsmiths' Company is a substantial assistance and raises the total sum promised or paid to more than one half of the sum with which it has been provisionally decided that it would be prudent to commence building operations. The delay, which has been inevitable considering the condition of the money market and the uneducated condition of possible donors with regard to the needs of medical education, cannot be regarded as altogether unfortunate. The idea of conducting the teaching of anatomy and physiology in institutions apart from hospitals, eminently desirable as it is from the point of view of hygiene, was a novel one to the majority of medical teachers in London and time was required to familiarise them with it. Whilst the teachers have been gradually appreciating the advantages of concentration from the point of view of efficiency and economy of teaching, the governors of the hospitals concerned have

not been slow to recognise the benefits which their patients would receive from the increased space rendered available for developments connected with the actual investigation and treatment of disease. A small experiment in concentration is already on its trial under the auspices of the University. Several medical schools are feeling the intolerable strain of providing an entire curriculum for their students and are earnestly looking forward to the fulfilment of the South Kensington scheme to enable them to develop the clinical and pathological side of their education. It is earnestly to be hoped in the best interests of medical education in London that the treasurers of the fund, Dr. J. Kingston Fowler and Mr. H. T. Butlin, may soon be enabled to announce that they have received sufficient support to allow them to claim a site at South Kensington and to begin the erection of the institute.

THE DISAPPEARANCE OF TYPHOID BACILLI FROM WATER AND SEWAGE.

THE importance of personal contact and of the contamination of food by means of dust or flies as factors in the dissemination of typhoid fever has almost withdrawn attention for the time from the question of polluted water-supplies, although the fact that many of the most destructive outbreaks have been thus brought about cannot be gainsaid. Yet the rapid disappearance of the bacilli from water or sewage which have been not only presumably contaminated but in which their presence had already been demonstrated is so remarkable that Emmerich was driven to doubt whether they ever retained their activity long enough to communicate the disease, and bacteriologists have generally contented themselves with adducing the presence of large numbers of bacilli coli as affording positive evidence of the actual pollution of the water by excrement and consequently of its possible specific infection. Thinking that the phenomenon might be explained by the abnormal conditions of cultivation in test tubes or flasks, Jordan, Russell, and Zeit sought to reproduce quasi-normal conditions by inclosing their cultures in celloid in bags or porous earthen vessels suspended in wells and running streams but they were no more successful in the continuance of their cultivation beyond a few days. Fehrs[1] of the Hygienic Institute of Metz next took up the inquiry working under the direction of Professor Esmarch. Bolton had shown that, *ceteris paribus*, the growth of the bacilli was favoured by the presence of organic matter but Fehrs found that they lived longer in distilled water or water sterilised by boiling or filtration than in "raw" water, whether from river, wells, or the city mains, dying out soonest in the unfiltered water of the Moselle, while the theory of their being crowded out by other bacteria was easily disposed of. Emmerich had suggested the protozoa as the agents in their extinction and Fehrs, having excluded other causes, found little difficulty in verifying the hypothesis. In "raw" river water, abounding in protozoa, infusoria, and minute entomostraca, the bacillus typhosus disappeared with the greatest rapidity, from 10,000,000 to 20,000,000 or 25,000,000 per cubic centimetre vanishing within 48 hours, whereas in the same water after having been boiled the bacilli were living and increasing at the end of eight weeks. In some waters apparently free from protozoic organisms the bacilli died out in the course of a week or two, when it would be found that some of the flagellata that had escaped observation had subsequently multiplied and overpowered the bacilli. In the most successful cultures in sterilised water containing a sufficiency of organic matter, the introduction of a number of flagellata, especially bodo saltans and bodo ovatus, was speedily followed by the disappearance of the bacilli, for which it would seem that these protozoa have a preference, unless indeed the multiplication of the bacilli coli is too rapid for them to keep pace with. But the crowning demonstration in Fehrs's observation was when he had stained the bacilli and could clearly see them through the transparent body walls of the bodo. In the absence of these their natural enemies, as in the laboratory, they can be kept alive for several weeks, and from the mud from the bottom of a deep well Konradi was successful in obtaining cultures on the 542nd day. Though the bacillus coli is too prolific for the flagellata to keep down, the bacillus of paratyphoid fever, the cholera vibrio, and even the bacillus anthracis speedily yield to the attacks of the flagellata which are thus shown to play an important part in the economy of nature.

[1] Hygienischer Rundschau February, 1906, original contribution.

FIFTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

THE executive committee of the forthcoming International Congress of Medicine, to be held at Lisbon from April 19th to 26th, has engaged a considerable number of rooms, some with one bed but the majority with more than one bed, at the price of six, eight, and ten francs per bed per diem respectively. There are also some rooms to be had inclusive of food, and so on, for 15 francs per diem per person. Tickets for these may be obtained at the Rocio station—viz., the terminus for passengers arriving at Lisbon by train—and during the sitting of the Congress. Moreover, visitors to the Congress will find every facility for meals at the various restaurants and hotels of Lisbon as well as at the official Congress restaurant. The lodgings will be distributed in the order in which they are asked for and all inquiries as to such must be sent before March 31st to Mr. Manoel José da Silva, Palacio Foz, Praça dos Restauradores, Lisbon. Arrangements have been made with the railway companies of France, Spain, and Portugal to allow members attending the Congress to return by a different route from that by which they arrived and a reduction of 50 per cent. on the usual fares will be made on condition that both the outgoing and the returning journeys are made by rail. The committee of the Congress has already begun to send out special tickets available on the lines of the three countries above mentioned, and moreover it has lately learned that the Italian railway companies are also willing to grant a reduction of 50 per cent. We are asked to state that a French pleasure yacht, the *Etoile*, has been chartered for the convenience of visitors to the Congress. She will sail from Marseilles on April 8th and will proceed to Malaga. Thence her passengers will make excursions to Granada and Cadiz where they will rejoin the yacht. She will then go to Seville whence passengers can visit Cordova. Rejoining the yacht at Seville the party will go on to Lisbon where during the Congress the yacht will serve as a hotel. After the Congress the yacht will return to Marseilles. The price for the whole trip, lasting 23 days, is 850 francs. Application must be made before March 15th to Dr. Helme, 10, Rue St. Pétersbourg, Paris.

THE DIET IN EPILEPSY.

THAT diet has an important influence upon the symptoms of epilepsy has long been known. It is usually recommended that the diet of the epileptic should be as far as possible free from material which is difficult to digest, and that coffee, strong tea, and alcohol should be avoided. The French observers, Toulouse and Richet, have published favourable results obtained by them in epilepsy from a diet the essential feature of which is the absence of chloride of sodium. In combination with such a diet they have found the ordinary treatment by the bromides to be more efficacious. There is a widespread belief that meat in particular is harmful in epilepsy and its

strict limitation is advised by competent writers. In a paper in the *Journal of Nervous and Mental Disease* for December, 1905, Dr. A. J. Rosanoff of New York records the results of an inquiry made by him, which go to prove that the dietetic factor of importance in the causation of the seizures and mental disturbances of epilepsy is not meat as such or any particular kind of food but the absolute quantity of proteid matter irrespective of its origin. Eleven patients suffering from long-standing epilepsy were kept for prolonged periods on five different diets, being confined to bed and receiving no medicine. The first observation was made with an ordinary mixed diet in which the amount of proteid was small, that of the carbohydrates large, and of the fats moderate. In the second case a vegetable diet was given which differed from the previous one only in the substitution of vegetable for animal proteid, the quantities of the proximate principles being practically the same in both. The results in these two instances were practically alike as regards the mental condition exhibited by the patients, the maintenance of weight, and the number of convulsions per week. So that the effect of a mixed diet in epilepsy does not differ from that of a vegetable diet containing the same quantities of proximate principles. In the third and fourth cases the features of the diet were respectively an insufficient and an excessive amount of proteids. In both cases the patients were restless and irritable and in both the number of convulsions per week rose in about equal degree. If, therefore, the amount of proteid is either above or below the indispensable minimum the severity of the disease is increased. In the fifth instance the diet contained a large excess of proteid and was very deficient in carbohydrates. The result was a general aggravation of the mental and physical disturbances exhibited by the patients who became dangerous, noisy, restless, and destructive, and mostly lost weight, whilst the convulsions greatly increased in number per week. This result is ascribed to the compulsory use by the organism of proteid in place of carbohydrate material. Carbohydrates and fats, it is pointed out, are, to a certain extent, capable of replacing proteids in the diet, and this with advantage in the case of the epileptic, who should therefore receive the largest amount of these principles that he can assimilate without inconvenience and the smallest amount of proteid which is compatible with the preservation of nitrogenous equilibrium, the nitrogen ingested not being allowed to fall below the nitrogen excreted.

Sir William H. Broadbent will be in the chair at a meeting to be held on Thursday, March 15th, at 8.30 P.M. at the Medical Society's Rooms, 11, Chandos-street, Cavendish-square, W., at which Dr. H. Charlton Bastian will give a demonstration of his much debated biological work. The occasion will be a very interesting one. Dr. Bastian's demonstration will show certain heterogenetic processes (with the aid of lantern slides) in the following sequence: (1) the apparent *de novo* origin of bacteria; (2) the transformation of small masses of zoogloea into aggregates of flagellate monads or amœbæ, or else into brown fungus germs; and (3) the origin of different ciliated infusoria from the eggs of a rotifer. The demonstration will be followed by a discussion in which all interested in the subject are invited to take part.

THE annual clinical debate of the Chelsea Clinical Society will be held at the Chelsea Dispensary, Manor-street, London, S.W., on Tuesday next, March 13th, at 8.30 P.M., and will be continued on the following Tuesday at the same hour. Dr. R. T. Hewlett, Professor G. Sims Woodhead, Professor A. E. Wright, Dr. F. F. Caiger, Dr. Bertram Abrahams, and Dr. Allan Macfadyen are announced to take part in the debate. We cannot congratulate the society upon the accuracy with which the notices have been printed. Dr. Macfadyen's name is mis-spelt and Professor Woodhead is called Professor Woodhouse.

THE twenty-third Annual Congress of the Royal Sanitary Institute will be held in Bristol from July 9th to 14th, 1906, when Sir Edward Fry has consented to act as President of the Congress, the following acting as Sectional Presidents:—Section I.: Sanitary Science and Preventive Medicine, Sir William J. Collins, M.D. Lond., M.P.; Section II.: Engineering and Architecture, Mr. Edwin T. Hall, V.P.R.I.B.A.; and Section III.: Physics, Chemistry, and Biology, Mr. W. N. Shaw, M.A., D.Sc., F.R.S. The Duchess of Beaufort will preside over the Ladies' Conference.

THE medical officer of health of the Cape Colony states that for the week ending Feb. 10th no case of plague in man or other animal occurred at any place throughout the Colony. As regards the Mauritius a telegram from the Governor received at the Colonial Office on March 3rd states that no cases of bubonic plague have occurred since Feb. 11th. As regards Hong-Kong, a telegram from the Governor received at the Colonial Office on March 5th states that for the week ending March 3rd there were 8 cases of plague and 7 deaths from the disease.

IN the analytical table of Sickness and Mortality Statistics in London during the year 1905 published in THE LANCET of March 3rd an error occurred in the figures of the deaths from principal infectious diseases owing to the accidental breaking of the type. Thus, the deaths from diphtheria, which should have read 546, appeared as 54, and the deaths from enteric fever, which should have read 234, appeared as 23.

A CONFERENCE will be held on Tuesday next, March 13th, at 8 P.M., at the Royal Sanitary Institute, Margaret-street, London, W., when the following subject will be discussed: the Right Disposal of the Leisure of School Children in relation to Physical and Mental Health. Sir Lauder Brunton will take the chair and among the announced speakers are Dr. G. H. Savage and Dr. T. D. Acland.

THE annual festival dinner of the Irish Medical Schools' and Graduates' Association will be held on Saturday, March 17th (St. Patrick's Day), at 7.30 P.M., in the Grand Hall, Hotel Cecil, Strand. The guest of the association will be General Sir John French. Applications from members for tickets should be sent to Mr. E. Canny Ryall, honorary secretary, 85, Harley-street, London, W.

H.R.H. Princess Christian has consented to patronise the performance of *Dandy Dick* by the "Strolling Players' Dramatic Club," to take place at St. George's Hall, Regent-street, London, W., at 8 P.M. on Tuesday, March 27th next, the proceeds being devoted to the special appeal fund of the Royal Waterloo Hospital, S.E.

FORMAL notices of appeal have been served against the decision of Mr. Fordham in fining two Holloway traders 20*s*., with £100 costs, each, for selling patent-still spirit as Irish and Scotch whisky respectively. The appeal, if proceeded with, will be to the North London sessions.

THE Queen will give sittings to Mr. George Wade for a statue, subscribed for by the governors and staff of the London Hospital. The statue is to celebrate Her Majesty's acceptance of the position of president of the hospital and also the completion of the rebuilding.

THE annual general meeting of the Medical Graduates' College and Polyclinic will be held at 22, Chenies-street, London, W.C., on Friday, March 23rd, at 5 P.M., when Dr. C. Theodore Williams will take the chair.

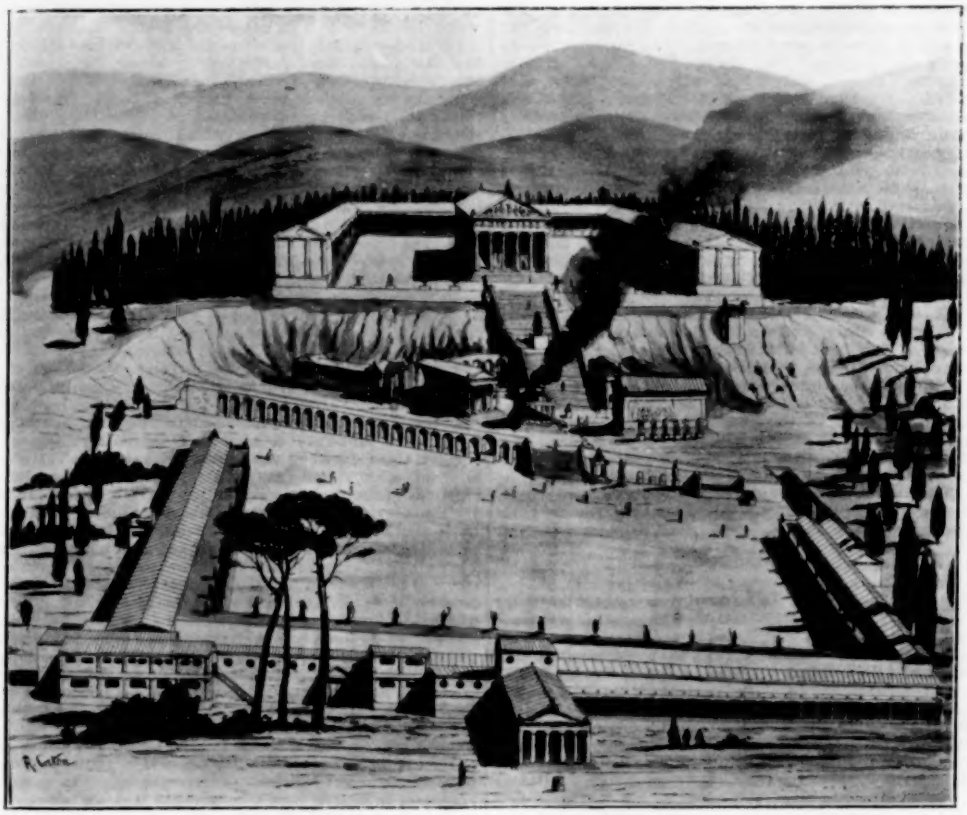
HIPPOCRATES AND THE NEWLY DISCOVERED HEALTH TEMPLE OF COS.[1]

BY RICHARD CATON, M.D. EDIN., F.R.C.P LOND.

AFTER exhibiting three portraits of Hippocrates and giving a brief sketch of his work at Cos, his influence in freeing medicine from superstition, his marvellous powers of observation and scientific insight, and his lofty conception of the aims which ought to characterise the physician, Dr. Caton showed photographs of Cos and of the ancient tree under which, according to tradition, Hippocrates was accustomed to give medical advice and counsel to the people in the town of Cos. He then traced the Sacred Way which leads to the Asklepieion or Health Temple. Before describing the remains of this great Coan sanctuary which the labours of Dr. Rudolph Herzog of Tübingen have brought to light during the past two years, Dr. Caton briefly recounted the principal temples and sanitary departments included in such of the Greek Asklepieia as had previously been excavated.

The great Health Temple of Cos was situated two miles from the sea at an elevation of about 320 feet at a point where the range of mountains, which rises on the south coast of Cos to a height of about 2800 feet, springs from the gentle slopes of the plain. Earthquakes with disturbance of the soil, the growth of vegetation, the evil deeds of the lime-burner, together with the building of various churches and mosques, had so completely masked the site that until three years ago not a living soul knew that the Panagia tes Tarsou with the gardens round it was the site of the famed Asklepieion. Two British archæologists, Mr. W. R Paton and Mr. E. L. Hicks, while searching Cos for inscriptions with much acuteness suggested this as a probable site. The situation is a remarkably beautiful one, commanding delightful views on all sides. Standing on three step-like terraces the buildings at present excavated extend for about 180 metres from north to south and about 129 from east to west. The spectator sees to the south the range of mountains I have mentioned. To the north the verdant plain of Cos with the white houses and trees of the town to the right, and the wide expanse of turquoise sea dotted by the purple islands of the Aegean and the dim mountains about Halicarnassus to the north-east. Of course, little remains of the sacred precinct but foundations, but from these and the architectural fragments which remain it is not difficult to reconstruct in one's mind the *ensemble* of beautiful buildings which existed 2000 years ago.

FIG. 1.



Restoration of the Health Temple at Cos.

The accompanying restoration (Fig. 1) will give some idea of the buildings grouped on three step-like terraces. In the foreground is seen a three-sided stoa or portico, having irregular buildings at a lower level adjacent to its outer border all round. This stoa is approached by a Doric propylæa or porch, within which there are signs of certain great tanks or basins and of an aqueduct supplying them. They were probably for the preliminary ceremonial ablutions. The Asklepiadæ were to be congratulated upon this usage.

[1] Abstract of a lecture delivered at the Royal Institution of Great Britain on March 2nd, 1906.

(Many of their successors would not be sorry if a preliminary cleansing or libation of soap and water were required from the votaries of the out-patient room in our modern Asklepieia!) The buildings adjacent to the left wing of this great stoa were occupied by an extensive series of baths, mostly reconstructed in Roman times. Here the hot and cold douches of which Hippocrates speaks, the frictions and affusions of water of various temperatures, the application of "smegma," a sort of hot semi-fluid soap, and the applications of sponge and strigil took place. Hippocrates believed greatly in the remedial uses of water, and here doubtless hundreds of his patients have submitted to the hydrotherapia of the time. Probably the remainder of these buildings on the north and west served as waiting rooms, consulting and operating rooms, the iatrium with its store of instruments of which Hippocrates speaks, including the scamnum or bench for reducing dislocations. Here probably would be the dispensary where were prepared the tisanes, the hellebore, the arsenic, the cantharides, and other drugs he names; also the library. Here may have been the rooms devoted to teaching, for Cos was a most important medical school. Here probably Hippocrates wrote his careful notes of cases, and probably kept the skeleton which he afterwards gave to the oracle of Delphi. Here also may have been the culinary department where the special diet to which the Coan school gave so much attention was prepared, where probably the "cygeon" was made, that curious mixture of cheese, honey, and wine, which we first read of as being given by Circe to Ulysses, but which notwithstanding this highly suspicious origin, may have proved a nourishing form of food for certain of the sick. Here, perhaps, was the winestore for the Chian or the strong Cretan vintages which Hippocrates so rarely gave *undiluted*. He was a believer of the truth that much strong wine weakened rather than invigorated. At the south-west corner of the stoa were situated the sanitary arrangements of the precinct. The area enclosed by the stoa was probably a palæstra where the gymnastic part of the treatment was carried out. We know that Hippocrates was the pupil, not only of his father Heracleides the physician, but also of Herodicus who relied more upon exercise and gymnastics than upon any other treatment. Hippocrates tells us that he believes Herodicus killed some of his patients who had febrile or acute diseases by insisting on too violent exercise. While avoiding this error Hippocrates prescribed exercise largely in suitable cases. Could we transport ourselves backwards in time to the year 400 B.C. we might have seen in this palæstra various examples of his methods, the gouty man casting the discus, walking or running round and round the stoa, or going through the sword or spear exercise, grumbling meanwhile at the meagreness of his prescribed diet, or the weakly and ill-developed youth running, throwing the javelin, or engaging in gentle wrestling, drinking the "red water," and taking a full and highly nutrient diet. Within the portico were many inscribed wall slabs, some referring to the inviolability of the precinct, others bearing wise maxims in regard to health. If Dr. Ermerins is correct many of these existed prior to the time of Hippocrates and were quoted in his Prorhetics and Praenotiones. Probably in later times many of his aphorisms were added to the number. We know that at the neighbouring Asklepieion of Cnidus similar precepts, termed the "Cnidian sentences," written by the physician Euryphon, were in like manner exposed to view. Votive tablets and the records of honours gained by Coan physicians were also conspicuously placed here.

The south side of the quadrangle consisted of a lofty wall with buttresses supporting the second terrace. This wall was interrupted by a flight of steps leading up to the second terrace and by several drinking fountains, one in particular, the sacred spring, of which no doubt every patient was made to drink freely. Ascending the stairs to the middle terrace we find ourselves in the most ancient part of the precinct, in which the various buildings are arranged irregularly. Near the centre of the terrace stands the great altar, a structure measuring 12 metres by eight, approached by steps on its western side. In some respects it reminds the visitor of the great altar of Pergamon, though smaller. It is difficult to judge from the remains what its exact details of construction were but appears to have been surrounded by a colonnade. There was a close association between Cos and Alexandria and I confess to the hope that a shrine of Iemhotep, the Egyptian god of medicine, would have been found here (as there is reason to believe it has at Epidaurus), but none has as yet been discovered. Another link, however, connects this altar with Alexandria. Herondas, the Alexandrian poet of the third century B.C., wrote eight "mime-iambics," comic dramatic poems, the scenes of which are all laid at Cos. The action of the fourth of these takes place in front of this altar. Two peasant women desire to offer a cock to Asklepios. During the sacrifice they chat with the pyrophorus or sacristan, who shows much enthusiasm on the subject of fees, and they comment on certain works of art—viz., a sacrificial procession by Apelles, and a figure of a small boy struggling with a goose, which are placed near the altar. Quantities of terra-cotta lamps and figurines were found round the altar.

To the west of the altar stands an Ionic prostyle temple, 16 metres in length and eight in breadth. Its dedication is unknown, but there is evidence from inscriptions that a temple of Apollo formerly existed here. Apollo being one of the greater gods would have his temple facing the east, and this temple is the only one in the whole precinct which has this orientation. The worship of Apollo which is thought to have taken place here was probably superseded by that of Asklepios in later times. So this may have become the Asklepian shrine until the date when the great temple was erected on the upper terrace. It contains one curious feature: a stone cyst or coffer composed of massive marble blocks forms a portion of the floor of the naos; it is about five feet long by four broad and is about three feet deep. The side blocks were connected by strong metal clamps. The weighty block forming the lid is pierced in its centre by an aperture some six inches broad. Dr. Herzog thinks it is a *thesaurus* or treasury. But the difficulty of removing the massive cover (which has no rings or handles for such a purpose) would render it almost impossible to deposit or to remove such treasure. It is known that at every Asklepieion the sacred serpents were worshipped as the incarnation of the god. Being tame and harmless they were free to wander at will throughout the precinct. They probably were supplied with a den or hiding place to which they could retire and it would obviously be convenient if this den were adjacent to the small altar where sacrifices were offered to them and where they were fed with the sacrificial cakes or "popana" by their votaries. At Epidaurus a curious dark labyrinthine vault was provided beneath the Thymele or sacrificing place. This I believe to have been the Ophision or serpent house, from which the serpents emerged close to the altar when the sick came to sacrifice and to feed them. We know from a reference in the Plutus of Aristophanes that the serpents were accustomed to be summoned by the sound of a whistle. A somewhat similar structure on a smaller scale exists at the Athens Asklepieion. There are, however, other theories as to the explanation of these buildings but none can be said as yet to be proven. To me the above explanation seems the most probable. I think it likely that the temple on the west of the altar, after ceasing to be the special shrine of Asklepios, continued to be the Thymele or sacrificing place for the sacred serpents and this coffer in the floor was the Ophision or snake-house. Above or near it would stand a stone or bronze tripod altar on which the incense and other bloodless sacrifices would be offered. Here the sick would come accompanied by a priest to offer their sacrifice and feed the serpents with popana or sacrificial cakes. The accompanying sketch (Fig. 2) shows the roof of the coffer and what I conceive to have been its use. To the north of this temple stood a building divided into rooms, reconstructed in Roman times, which is thought to have been a house for the priests. Passing now to the east of the great altar we come to a Doric peripteral temple, the most ancient in the precinct. It measures 16 metres in length by ten in breadth, has six columns at each end, and nine on either side. It faces west. It is known that there were shrines of Hygeia, Aphrodite, Helios, Athena, the Fates, and Hemera in the precinct; perhaps it was dedicated to one of these. To the north of this temple, adjacent to the great flight of steps, a lofty supporting wall was built against the face of the cliff. Between it and the peripteral temple is a large exedra or semicircular seat where the convalescents sat to enjoy the glorious view and the sweet sea and mountain breezes. On the east of the peripteral temple there remain a series of irregular foundations on which stood probably small temples and shelter porches, the latter of which would serve the same purpose as the exedra. No colonnades are found on this second terrace. Ascending the great flight of steps and passing on the way a large base which may have supported a colossal statue we reach the highest terrace and find facing us the great temple of Asklepios. This is a newer building, dating

from the latter years of the third, or beginning of the second, century B.C. It is peripteral Doric and measures 31 metres by 16. Six columns stand at each end and 11 on either side. The foundations are chiefly trachite but the temple and columns were marble. Each column was one and a quarter metres in diameter at the base. There remain traces of two groups of statuary. After the fall of the temple, probably in the earthquake of 554 A.D., a Byzantine chapel was constructed in the remains of the pronaos.

Little is known about the interior. A great figure of Asklepios would stand in the naos but it is not known what was its material Some remains of a great marble serpent have been discovered. Great porticoes surrounded the temple on the east, south, and west, the whole structure measuring about 108 metres east and west and 70 north and south. It seems probable that the east and west wings of the stoa were abatons or sleeping places for the sick, like those at

FIG. 2.

Scene of Serpent Worship at Cos.

Epidaurus, one for male and the other for female patients. Here they reposed on their couches for the night (and some also during the day), hoping for illuminating nocturnal visions from the god, for visits from the sacred serpents, and for miraculous healing. Here the evening prayers were recited to the god, to whom gifts were presented on the tables and altars within the abatons, and all the occupants were encouraged by the priest to hope for succour from Asklepios and Hygeia. The abaton was a lofty colonnade freely open to the mountain breezes and much resembled the shelter balconies used in our modern sanatoriums. The mere exposure to a pure atmosphere was a most potent health giver. It is interesting to note that the idea of incubation close to a temple or church as a means of cure for the sick still exists at Tenos and other of the Greek Islands' (*vide* the writings of Dr. W H. Rouse). The sacred grove of cypresses surrounded the upper and middle terraces. Higher up in the hills were two remarkable springs. One, known as the fountain of Hippocrates, may, after the ascent, be approached by a short tunnel of Mycenæan architecture, at the end of which is a curious dome-like chamber with seats round its walls and a fountain in the centre. The second is the celebrated "red water" or chalybeate spring, used in cases of anæmia. Convalescents were encouraged to mount the hill and drink from one or other of these springs at its source. It is not yet decided whether any of the numerous lines of earthenware piping discovered near the Asklepieion conveyed these waters down to the various fountains and baths in the precinct.

Multitudes of works of art existed here in ancient times, but all have been stolen or destroyed. A celebrated statue of Alexander the Great of bronze is recorded to have had a seedling lily growing in its rather rough hair. Many small fragments of sculpture of great merit have been discovered and vast numbers of remains of inscriptions, into description of which limitations of space prevent my entering. No theatre or stadium existed at the Asklepieion, those adjacent to the town of Cos being employed at the time of the great festivals. The research thus far has proved extremely interesting and Dr. Herzog is to be congratulated on his learning and success as an excavator.

THIRTEENTH ANNUAL REPORT (FOR 1904) OF THE MEDICAL OFFICER OF HEALTH OF THE ADMINISTRATIVE COUNTY OF LONDON.

III.[1]

LITTLE less than half the volume issued by the health committee of the London County Council is occupied by its three appendices, each of which must be regarded as contributing to the subject of public health administration in the County of London. Detailed consideration of the important matters contained in these appendices has been precluded, for want of space, in our previous notices of the county medical officer's report, although the contents of these appendices have been frequently commented on by Sir Shirley F. Murphy as the several matters dealt with came under his review. In the present article we proceed to discuss some of the more important subjects treated of in this section of the health committee's report.

In THE LANCET of Jan. 21st, 1905, p. 170, we alluded to certain recent changes in the public health department of the London County Council—changes that had become necessary in consequence of the increased complexity of metropolitan government which had followed the assumption of educational responsibilities by the County Council. In the sanitary history of the metropolis the year 1904 will retain a prominent place, because in that year a direct administrative relationship was established between the public health and educational requirements of our vast community.

The medical supervision of school children is a measure of vital importance, both from the public health and from the educational point of view, for by this means alone can the conditions influencing the growth and development of the young be effectually ascertained and correctives applied for whatever physical deterioration is discovered among the infantile members of the community. The London County Council has come to recognise the intimate relation that subsists between the medical supervision of children whilst at school and their physical and mental prospects in after life. And for administrative purposes it has wisely combined its sanitary and educational functions in one comprehensive public health department. Preparatory steps have already been taken for the organisation, on the lines recommended by the Committee on Physical Deterioration of an anthropometric survey of the school children of the metropolis. In his carefully prepared report (see Appendix iii) Dr. James Kerr, the medical officer for education, has published figures showing the weights and heights of a portion of the school children under his supervision; he also gives account of the steps taken by his advice for promoting the cleanliness of children in attendance at school, as well as for limiting the spread amongst them of contagious, verminous, or infectious diseases. The thoroughly practical nature of Dr. Kerr's work may, perhaps, be best illustrated by briefly recounting the details of two particular cases in which, with the help of Dr. F. D. Berry and Dr. C. J. Thomas, he has investigated the causes of variation in the physique of scholars in attendance at school. In the case of one of these schools accommodating 400 pupils each boy was carefully weighed and measured, a note being made as to the condition of his teeth and as to his general cleanliness, as well as to the sufficiency or otherwise of his clothing—the latter as a basis for determining the home conditions, of parental neglect or of parental care. An estimate of mental capacity was in all cases added by the school teacher. Taking the state of clothing as the best available index of

[1] Concluded from THE LANCET of Feb. 24th, p. 542.

relative poverty, the boys were classed in five groups according as the conditions varied from the very worst to the very best. The first group, containing 7 per cent. of the whole, consisted of children whose clothing was of the scantiest—e.g., consisting of a single ragged coat with practically nothing underneath it, the boots being either absent or replaced by a mass of rags tied about the feet. The second group, embracing 35 per cent. of the whole, consisted of children whose clothing was insufficient to sustain the body temperature, a state of things urgently requiring remedy. In the third group, consisting of 46 per cent. of the total, the children were poorly and often raggedly clad; the garments, however, were perhaps sufficiently warm, with some attempt at proper underclothing. The children in the fourth and fifth groups, constituting 12 per cent. of the entire school, were properly and sufficiently clad. As might have been expected, the 30 boys of the first (and worst) group failed to reach either the average weight or the average height; the 141 boys of the second group just attained the average, whilst the 49 well-clad boys of the last group exceeded the average with respect both to height and weight. Pursuing his examination of the same school Dr. Kerr finds that if want of cleanliness be taken as evidence of home neglect the proportions tabulated are equally instructive. Thus out of a total of 400 as many as 45 boys, constituting the worst group, were found to be verminous, and these were considerably below the school average both in weight and height. The 141 boys of the second group whose clothes and bodies were dirty but not verminous corresponded to the average in both respects, whilst the 48 clean boys of the last group were above the average height by as much as 1·7 centimetres. It is not claimed that the foregoing results show more than the general effect of poverty on physique, although the excessive shortage of weight in the worst-clad group indicates that insufficiency of clothing is a definite factor in producing malnutrition, the deficient food-energy being the first to fail in order to sustain the animal heat. From the same source we learn that, so far as can be gathered from this single experiment, no correlation can be established between mental capacity and bodily physique. For example, whilst on the one hand the boys of less than average intelligence corresponded to the average in weight and height, on the other hand, the boys whose intelligence exceeded the average showed a decided advantage in physique. But the exceptionally brilliant boys (10 per cent. of the whole) were actually below the normal for the school both in weight and height. Further pursuing the same investigation Dr. Kerr examined the effect of overcrowding on the physique of school children. Taking as a test the proportion of families living two, three, or more in a room he finds that it is at the extremes only that the pernicious effect of overcrowding can be demonstrated by the figures hitherto examined. But when the degree of overcrowding amounts to more than five persons in a single room its effects become startling. For the actual results, however, reference must be made to the report. It is interesting to note in passing that wherever the parents of school children are reported to have "come down in the world"—to have fallen from a higher social stratum—the children are actually of excellent physique compared with the "aboriginal denizens" of the neighbourhood.

In his second appendix Sir Shirley Murphy presents his own report, together with the reports of Dr. Frank Clowes and Dr. A. C. Houston on the relation of the eating of contaminated watercress to the spread of infectious disease. Within 50 miles of London it is estimated that more than 200 acres are under cultivation as watercress beds, the amount of this vegetable annually consumed as food in London probably exceeding 1500 tons. The undoubted fact that in certain well-known circumstances enteric fever may be caused by the ingestion of foul watercress has caused attention to be directed to the conditions under which the growth of *nasturtium officinale* is carried on for the supply of the metropolitan markets. By some it is stated that watercress cannot be grown profitably otherwise than in sewage-polluted water. This, however, is not the fact, for it is known that "brown cress," which is accounted the most wholesome and palatable, is the product of what Mr. Shirley Hibberd terms "the rills that flow cold and bright through pure and purifying chalk strata," whilst the dark-green or purple cress generally emanates from waters flowing through alluvial strata and therefore more likely to contain sewage. This so-called "sewage cress" does not thrive well unless the temperature of the water in which it is grown exceeds 50° F. and therefore can only be produced in good condition during the summer months. It grows best at a temperature of about 60°. The best watercress is, however, grown in artesian well water which is not only free from contamination but is comparatively warm. The grower can therefore produce excellent artesian well cress in the early months of the year when the summer or sewage cress is not as yet ready for gathering. Prudent eaters of watercress will probably be thankful for this hint in making purchases from the London markets. The evidence obtained by Dr. Houston as the result of his bacteriological examination of watercress and of the water in which it was grown strikingly confirms that of Sir Shirley Murphy yielded by topographical inquiry. Dr. Houston found that four samples taken from beds the conditions of which as regards freedom from sewage pollution were apparently satisfactory, were ten million times purer (bacteriologically) than were samples from two beds that were most open to objection and at least one million times purer than were samples from three other beds in which the conditions were noted as unsatisfactory. He reports that danger to the consumer of unwashed watercress is enormously reduced by careful cleansing of the cress, but that even the greatest care devoted to the washing of cress from polluted sources does not always entirely free the plants from objectionable microbes. It is quite clear from the aforesaid inquiries that watercress of the best quality can be grown under conditions to which, from a hygienic point of view, no exception can be taken.

An able and instructive report on the use of ice for human consumption is the subject of another appendix to this report. It appears that in the year 1903, in consequence of communications received from Bermondsey, the London County Council referred to its medical officer for investigation the question as to the conditions under which the ice trade is carried on in the metropolis. Accordingly Dr. W. H. Hamer was instructed to inquire into this question, and his report, together with an introduction by Sir Shirley Murphy, was presented to the County Council in the course of 1904. Dr. Hamer's remarks on the development of the ice industry are interesting. Tracing the rapidly increasing use of ice in London both for consumption with food and for cold storage he says that the "ice habit" originally came to us from the United States. The Americans have a decided "passion" for iced water. Not only does it come up at every meal but even throughout the night it must be accessible, the habit being to place in the mouth of a jug a wedge of ice, so that thawing all night and dripping into the jug an ever-ready supply of water just above freezing point is at all times available. This passion for iced water has been attributed to the need which is universal in the United States for highly flavoured ice-cold drinks, a need which is accounted for on the ground that as alcoholic beverages are fast falling into disuse there and the sensation of taste consequently remaining ungratified the sensation of temperature forms the best available substitute. With respect to the importation of natural ice into this country, we learn that much of it used to come to us from America but that later a Norwegian lake near Drobak was laid under contribution and from there large quantities of ice were shipped to England under the name of "Wenham Lake ice." Dr. Hamer quotes from an annotation in THE LANCET of July 27th, 1901, p. 224, in which we stated that the greater part of the ice used at that time in London came from small lakes and ponds in Norway which are situated in such secluded sites as to render any contamination with animal matters highly improbable, and further that samples of the ice had been found by us to be pure, sparkling, and unlikely to cause mischief if used for drinking purposes. We, however, gave a word of caution with regard to the lead-dissolving powers of ice-water. The evidence as to causation of actual disease by the ingestion of impure ice is scanty, gastro-intestinal disturbances rather than definite enteric fever having so far been ascertained to follow its use. The amount of artificial ice manufactured in London from distilled water is rapidly increasing; and although between three and four hundred thousand tons of Norway ice still come to London every year, some thirty or forty thousand tons are manufactured here for home consumption. It is obviously in the manufacture of ice from distilled water that safety is to be found, and we hope that the time is not far distant when the sale of natural ice from polluted sources will be made a statutory offence against the public health.

METROPOLITAN HOSPITAL SUNDAY FUND.

ON March 2nd at the Mansion House the LORD MAYOR presided over a meeting of the Council of the Metropolitan Hospital Sunday Fund to consider the report of the committee of distribution on the increase of out-patients.

Among those present were the Archdeacon of London, the Rev. Prebendary Ingram, the Rev. Brook Deedes, the Rev. E. H. Pearce, the Rev. C. H. Grundy, the Hon. Sydney Holland, Sir R. B. Martin, Mr. George H. Herring, Sir J. T. Ritchie, Sir William Church, Sir Dyce Duckworth, Mr. Thomas Bryant, Dr. J. G. Glover, and Mr. Wakley.

Sir EDMUND HAY CURRIE read the report of the committee of distribution as follows:—

The committee of distribution beg to submit the following report resulting from their inquiries respecting the increase in the number of out-patients at the various hospitals.

At a meeting held on July 27th, 1905, the following resolution was unanimously passed: "This committee is of opinion that the serious increase in the number of out-patients (many of whom have trivial complaints) is detrimental to the welfare of the hospital and patients, inasmuch as they are a burden to the funds of the hospitals and prevent the hospital staffs from giving the necessary attention to serious cases." A copy of this resolution was forwarded to 30 hospitals having out-patient departments inviting the opinions of their committees on the question and asking if they could suggest any remedy. Their replies have been received and their suggestions tabulated. It would seem from the reports furnished to the committee by the hospitals that the number of general out-patients is decreasing but the attendances at the special departments cause an increase in the actual figures. Subsequent meetings of the committee were held on Nov. 30th and Dec. 14th, 1905, and Jan. 11th and Feb. 15th, 1906. At the meeting on Dec. 14th a deputation was received from the East London Medical Society, who submitted a memorandum stating their views, to which the committee have given every consideration. Suggestions have been made to the committee that after the first visit patients should not be allowed to attend a second time without a certificate from a medical man in the neighbourhood that the case is a proper one for treatment at a hospital. The committee cannot see their way to agree to this proposition but they are of opinion that if such cases could be referred to a private practitioner or to a self-supporting dispensary (provided sufficient of these could be established) nothing but good would result, especially if the dispensaries were attended, not by a few medical men in the district, but by the whole of the general practitioners in the immediate neighbourhood, such dispensaries to be affiliated to the nearer general hospitals. The committee recognise that the constituents of the Fund have for the first time decided to make grants to "district nursing associations employing fully trained hospital nurses" (there are about 300 of them engaged throughout the metropolitan area), and as these nurses work only under the direction of local medical men the committee are of opinion that some sort of affiliation should be made and that casualty patients might be recommended to apply to the superintendents of these associations after receiving "first aid" at the hospital and thus come under the professional care of the local medical men.

The committee are of opinion (*a*) that notwithstanding the large number of attendances in the out patient departments of the general hospitals the hospitals have hitherto increased their accommodation and qualified staffs to an extent sufficient to enable them to cope with all such cases. (*b*) That there is not any serious abuse of the out-patient departments in the general hospitals and that any which may exist at the present time can be effectually met by an efficient system of investigation, conducted by a competent staff in the out-patient department, who should visit the homes of the patients and for that purpose the addresses of all out-patients should be taken.

The committee has considered it advisable to confine its investigation to the general hospitals only and not to the special ones.

Feb. 22nd, 1906. (signed) W. S. CHURCH, Chairman.

Sir WILLIAM CHURCH moved that the report be adopted, circulated among all the hospitals, and sent to the press.

The Rev. C. H. GRUNDY seconded. He said that there was no doubt that great abuse of the out-patient departments of hospitals existed and suggested that a small fee should be charged to patients attending general hospitals.

Dr. GLOVER said that though there was a creditable effort on the part of the hospitals to reduce the numbers of the out-patient department it was still much abused. One hospital alone, the Hospital for Women, Soho, had reduced the attendances in the out-patient department from 32,150 in 1897 to 16,656 in 1904. He had never believed much in the triviality of the diseases. They must be careful not to push that idea too far. For even a trivial ailment or accident tended to impair the working value of a poor man or woman. The abuse could only be corrected by organised coöperation with medical men, with the help of the clergy, and the nurses of the poor. The subscribers to hospitals, too, should realise their responsibility to investigate the fitness of patients sent. He felt sure that the public would give more generously to the hospitals if the authorities would take pains to mitigate this great evil and to reserve hospitals more severely for the relief of fit cases.

Mr. BRYANT asked the chairman of the committee if any inquiry had been made as to the value of the scheme which had been worked out for in-patients and out-patients at Bolingbroke Hospital, Wandsworth Common, and had proved so highly satisfactory. He had been surgeon to the hospital for 15 years and could say that during that period everything had worked smoothly and that there had been no friction with any of the medical men of the district or trouble with any one. Indeed, he looked upon the system there established as an object lesson worthy of imitation by all hospitals of moderate dimensions, London or provincial. The system was introduced originally by Mr. Cecil R. C. Lyster, when house surgeon, and is now well established. Mr. Bryant then went on to describe the system.

Sir WILLIAM CHURCH and Sir DYCE DUCKWORTH argued that there was little abuse of the out-patient department, the latter stating that he acted as physician to the out-patient department for 14 years in St. Bartholomew's Hospital and that he had only detected three cases of abuse.

The Hon. SYDNEY HOLLAND denied that the out-patients' departments were abused. All the talk about abuse of hospitals came from people who were not connected with them.

The report was subsequently adopted.

On the motion of Sir R. B. MARTIN it was decided to call a special meeting of the constituents of the Fund for March 20th, at 2.45 P.M., to consider the following:—

That inasmuch as there is no definite constitution of the Fund and to obviate difficulties arising in future the council be authorised to take such steps as it thinks fit for the incorporation of the Fund by Royal charter or otherwise.

BRITISH MEDICAL BENEVOLENT FUND.

THE monthly meeting of the committee of this Fund was held on Feb. 20th. 16 applications were considered and sums amounting to £148 10*s.* were voted in relief, one case being postponed for further inquiry. Two vacant annuities of the value of £20 each were filled by the election of suitable candidates.

Dr. J. Michell Clarke of Bristol and Mr. W. G. Spencer of the Westminster Hospital resigned the office of honorary local secretaries, and Mr. E. H. Buckell and Dr. James Allan were appointed for Chichester and Leeds respectively.

At the annual general meeting of subscribers to the Fund, held on the same day, the treasurer's financial statement for 1905 and the report of the committee were received. These showed that £2453 13*s.* 4*d.* had been distributed in annuities and £1492 in grants during the year, a total of 263 persons having received relief. Two additional annuities had been created, making 123 in all. An appeal had been sent at the expense of a member of the committee to every practitioner in London and, by the courtesy of the officers of the British Medical Association, to all its branch and divisional secretaries. Encouraging replies had been received and altogether 26 new honorary local secretaries had been appointed during the year.

The financial statement and the report having been adopted the committee and the officers of the Fund were re-elected, and Sir Thomas Barlow, Bart., Sir Victor Horsley, F.R.S., Mr. H. T. Butlin, and Mr. G. Cooper Franklin (President of the British Medical Association), were elected vice-presidents.

A very cordial vote of thanks was passed to the medical press for their assistance during the year and especially to the Editors of THE LANCET and to the officers of the British Medical Association.

Abstract of Cases Relieved at the February Meeting.

1. M.R.C.S., L.S.A., aged 65 years, who practised in a Kentish town for 40 years. Is hemiplegic and quite helpless, requiring constant attention. Only income £50 a year from the Kent Medical Benevolent Fund. Relieved once, £12. Recommended by Dr. F. Hinds. Voted £12 in 12 monthly instalments.

2. Daughter, aged 54 years, of late M.R.C.S., L.S.A. No income; tries to support herself by sewing. Indifferent health. Mother was an annuitant of this Fund. Recommended by Dr. Ernest Nevins, honorary local secretary. Voted £12 in 12 monthly instalments.

3. Daughter, aged 49 years, of late M.R.C.S., L.S.A. No income; receives £25 a year for doing some mission work. Mother was an annuitant of this Fund. Recommended by Dr. A. Garrod Thomas. Voted £10 in two instalments at intervals of six months.

4. Widow, aged 42 years, of L.R.C.P., L.R.C.S. Irel. Left very insufficiently provided for at husband's sudden death six months ago. Three children, aged 14 to six years. Is endeavouring to add to her small income by letting lodgings. Recommended by Dr. Henry Gervis.

Voted £10 10s., to be paid through a fund which is being locally collected to be invested for the benefit of applicant and her children.

5. L.R.C.P., L.R.C.S. Edin., aged 33 years. Four children, aged ten to three years. Supports himself by acting as locum tenens but finds great difficulty in getting work at this time of the year. Recommended by Mr. William Davidson. Voted £5.

6. Widow, aged 57 years, of M.R.C.S. Eng. Only certain income £6 a year; lost small capital since husband's death nine years ago by attempting to keep a boarding-house; now lets lodgings. Children unable to help. Recommended by Sir Samuel Wilks, Vice-President. Voted £12 in 12 instalments.

7. Widow, aged 40 years, of L.R.C.P. (Ireland), L.S.A., who was obliged to give up practice three years ago and has quite recently died from phthisis. Three children, aged 15 to 11 years. Only means of support the rent of a small house and the interest of a life policy for £200. Recommended by Dr. Percy Kidd. Voted £10 in one sum.

8. L.R.C.S., L.S.A., aged 78 years, who is bedridden from hemiplegia and senile gangrene. Is an annuitant of this Fund and of Epsom College. Voted £5 as a special grant with leave to apply again in three months if necessary.

9. Widow, aged 56 years, of L.S.A. Practically unprovided for at husband's death a few years ago and endeavours to maintain herself by taking lodgers. Five children, one dependent, and the others barely self-supporting. Relieved four times—£45. Recommended by Dr. W. S. A. Griffith. Voted £12 in 12 instalments.

10. Daughter, aged 68 years, of late L.S.A. Only income a small Government annuity purchased with applicant's savings. Health indifferent. Relieved five times—£35. Recommended by Dr. E. G. Barnes. Voted £5 in one sum.

11. Widow, aged 40 years, of M.D. R.U.I. Quite unprovided for at husband's death six years ago. Acts as housekeeper in exchange for a home for herself and her boy, aged seven years, but receives no salary. Relieved seven times, £83. Recommended by Dr. J. Mitchell Bruce. Voted £12 in 12 monthly instalments.

12. Daughter, aged 38 years, of late M.D. Glasg. No income; tries to support herself by playing at dances, &c. Relieved three times, £17. Recommended by Dr. A. W. Orwin. Voted £5 in one sum.

13. Widow, aged 75 years, of L.R.C.S., L.S.A. No income; slight help from children. Relieved ten times, £70. Recommended by Dr. P. H. Pye-Smith, vice-president. Voted £ 8 in 12 instalments.

14. Widow, aged 56 years, of L.R.C.P., L.M. Glasg. No income. No children. Lets lodgings. Relieved four times, £40. Recommended by Dr. D. Yellowlees. Voted £10 in ten instalments.

15. Daughter, aged 50 years, of late L.R.C.P. Edin. After being employed by a firm of dressmakers for 22 years invested small savings in a business which proved unsuccessful. Is promised 10s. a week by a friend and earns a little by needlework when able to obtain it. Relieved once, £10. Recommended by Dr. A. Godson. Voted £10 in two instalments.

MEDICINE AND THE LAW.

Medical Aid as a Necessary in the Legal Sense.

IN another column will be found mentioned an action brought by a dentist in the Taunton county court to recover £5 from a farmer in respect of professional services rendered to his wife. As a husband is liable for debts contracted by his wife in respect of necessaries for her use the question had to be argued whether false teeth, the supply of which formed an important item in the account, were necessaries. The county court judge decided that they were and judgment was given for the plaintiff with costs. The question of necessaries or not necessaries arises, it will be remembered, not only in the case of married women, but frequently also where goods are supplied to minors who plead their infancy as a defence. The subject of the claim must then be shown to be a necessary, taking into consideration the circumstances of the case—that is to say, allowance must be made for the rank and station of the person to whom the alleged necessaries were supplied. The farmer's wife in the case referred to presumably was supplied with teeth at a rate and under conditions suitable to her condition. It does not, of course, follow that if she had taken a journey to London and placed herself in the hands of one of the leaders of the dental profession accustomed to charge high fees to patients well able to afford them he would have been able to satisfy the judge that she was entitled to his assistance at his usual rates as a necessary. Similarly a medical man called upon to treat a minor will do well to bear in mind that it is only such attendance as may be necessary, taking into consideration his rank and station, for which he can be compelled to pay should he desire to escape from the obligation to do so.

The Pollution of Oyster Beds by Sewage.

Mr. Justice Buckley, sitting as an additional judge in the King's Bench Division, after a protracted hearing has delivered a considered judgment in an interesting action brought by Mr. A. J. Hobart, trading as George H. Hammond, against the corporation of Southend-on-Sea in respect of the alleged pollution of his oyster beds in Hadleigh Ray, near Southend, with sewage discharged by the defendants, untreated, into the estuary of the Thames. Such a case as this must always be considered to be *sub judice* pending the appeal or appeals which almost inevitably follow, and it may have been noticed that on this ground the President of the Local Government Board passed over without comment the question of Southend and its sewage in replying to a question in the House of Commons.[1] It is enough, therefore, to state with regard to the facts alleged that Mr. Justice Buckley, after going through the evidence as to these in a judgment[2] which is well worth reading by those interested in the subjects of sewage disposal and of the public health, found that the Southend sewage did find its way to the plaintiff's oyster beds to their detriment and to add that the evidence and arguments of the defence were directed to proving that the pollution, if any, was due not to Southend sewage but to sewage matter entering the river at other places and from other sources. The following points of law were raised by the defendants. They argued that even though the fact of pollution might be found against them they were entitled to discharge their sewage as they did, firstly, because they had a common-law right to do so; and secondly, because they had a statutory right to do so. Upon both points the learned judge was against them, holding upon the first that the plaintiff was entitled to the enjoyment of a "several fishery," and that he had a right to use the land for the laying of his oysters there with which the defendants interfered by allowing their sewage to be discharged in such a way as to reach his land. From an old judgment (Tenant *v.* Goldwin, 1 Salkeld 21, 360) he cited a passage as applicable to the case before him: "It was the defendant's wall and the defendant's filth and he was bound of common right to keep his wall so as his filth might not damnify his neighbour, and it was a trespass on his neighbour as if his beasts should escape, or one should make a great heap upon his ground and it should tumble and roll down upon his neighbour's." Upon the second point the Southend corporation contended that if they had no common-law right to discharge their sewage as they did they had a right by statute arising out of Section 49 of the Public Health Act, 1848, under which the owner of a house situated within 100 yards of the sea might be called upon to construct a drain into the sea. From this they sought to infer that there must be a right to drain into the sea. The Act of 1848, however, was repealed by the Public Health Act, 1875, which re-enacted the substance of the section referred to but omitted the portion relating to drainage into the sea and also provided that the exercise of any powers given must not be conducted so as to create a nuisance. His lordship held that the argument based upon the Act of 1848 was thus displaced and in further corroboration of his view that the law did not protect the corporation he referred to the Sea Fisheries Act, 1868, Sections 51 and 53, which impose penalties upon anyone "knowingly" disturbing an oyster bed, which he pointed out the corporation would now do if it continued its practice, whatever want of knowledge there might have been before, and to the Sea Fisheries Act, 1888, under which by-laws can be made by local fishery committees and in fact had been made by the Kent and Essex Sea Fisheries Committee, with the sanction of the Board of Trade, which by-laws forbade that which the defendants had done. He also pointed out that no local Act or provisional order confirmed by Parliament gave the Southend corporation any powers to discharge its sewage. A claim of prescriptive right had been pleaded but had been abandoned during the hearing of the case, and with regard to this Mr. Justice Buckley observed that if this claim had been maintained it might still have been possible by discharging sewage only at suitable times with reference to the tides to enjoy such a right without polluting the plaintiff's oyster beds and that consequently it had not been shown that the injunction against the continuance of the pollution would interfere with any right derived from prescription. In conclusion he assessed the damages at £1500 and gave judgment for that amount with costs, granting also an injunction to restrain the defendants as asked for in the claim but limiting the time of it to the duration of the plaintiff's lease of his oyster beds at Hadleigh Ray.

Cases of Manslaughter or of Concealment of Birth.

In two cases tried at the recent assizes at Lincoln attention was called to an essential factor in the charge of concealment of birth which is likely to escape the observation of those not versed in the criminal law. An indictable

[1] THE LANCET, March 3rd, p. 638.
[2] See The Times, Feb. 22nd, p. 3

offence is committed if any woman is delivered of a child by "every person who shall by any secret disposition of the dead body of the said child, whether such child died before, at, or after its birth, endeavour to conceal the birth thereof." In the two cases referred to the children had been secretly abandoned by their mothers when alive and in one of these there had been a conviction before the judge's attention was called to the fact that the child was not dead when concealment was attempted. The mother who throws her child alive down a privy or abandons it in such circumstances that death naturally follows may lay herself open to a charge of murder or of manslaughter but does not, strictly speaking, commit the offence known as concealment of birth. She may, however, be indicted for murder and the jury, while acquitting her upon the capital charge, may convict her of concealment of the body of her dead child "in case it shall so appear by the evidence." In cases of this class there is a tendency, due to sympathy with the suffering which the mother has often gone through, to acquit her of the more serious offence and to find a merciful verdict, perhaps not altogether justified by the evidence, and similarly she may, through the clemency of the magistrate, be committed for trial for the lighter offence only, and if the evidence at her trial fails to establish this acquittal is the result.

A Cruel Libel on a Medical Man.

A man named Foxlee has been found guilty of a libel, or rather a series of libels, of a malignant and disgusting character upon Dr. A. R. Waddell of Potter's Bar. Dr. Waddell's case was successfully undertaken by the Medical Defence Union. There were circumstances of professional interest attending the case which will make a further reference to it interesting.

ASYLUM REPORTS.

Royal Asylum of Montrose (Report for the Year ending May 14th, 1905).—From the report of Dr. John G. Havelock, the physician superintendent, it appears that the daily average number resident in this institution throughout the year reported on was 685. The cases admitted numbered 146, of which 110 were new ones; the discharges 85, of whom 61 left recovered (or 41·78 per cent. of the admissions including transfers) and 18 relieved; the deaths 71 (or 10·36 of the daily average resident) At the close of the year there were 680 in residence, of whom 132 were private patients, the remainder being chargeable to parishes in various parts of Scotland, some amongst them to remote parts such as Caithness and Shetland. Amongst causes of insanity in the admissions old age heads the list with 21 cases, alcoholic intemperance being next with 11. In seven cases the cause was apparently religious excitement and these it is thought may have succumbed to the influence of the "church crisis" in Scotland, or may have been the victims of "the revival movement," from which we gather that unusual religious influences have possibly been at work in Scotland of late, though scarcely probably to the extent that has obtained in Wales. Two patients were stated, by their friends it would seem, to have succumbed to a disorder called "motor-mania," a condition said to be induced by the strain of driving mechanically-propelled vehicles. We do not remember to have heard of it before and are content to await further experience before accepting an addition to the dangers already associated with the pursuit of motoring. Hereditary influences, direct or collateral, were ascertained in the extremely low proportion of nine cases out of 146 admissions, notwithstanding that at Montrose, according to the report, more exact information as to causation is possibly obtainable than is the case with institutions serving large urban districts: "In a country parish the complete history of the patient is commonly known ..... even the family history for a generation back." The great majority of the cases admitted were varieties of mania and melancholia. Two villas are in use, one for each sex, and this plan is found most suitable here as at other asylums. In the first of the two reports of the Commissioners in Lunacy it is noted that female nurses have been placed in charge of the male sick ward, a system which is spoken of with approval by the Commissioners. It is further mentioned that new cases are now admitted to, and treated in, a separate hospital ward, an arrangement which is expected to favour the early recovery of the curable. Both reports of the Commissioners in Lunacy refer in favourable terms to the condition of the asylum.

Staffordshire County Asylum, Cheddleton, near Leek (Report for the Year 1904–05).—Although this asylum was only opened six years ago the accommodation is to be increased to the extent of 400 beds. From the report of Dr. W. F. Menzies, the medical superintendent, it appears that the admissions for 1904 numbered 205; 86 patients were discharged recovered (the high proportion of 42·4 per cent. of the admissions), and 80 died (12·54 per cent. of the average daily number resident, a figure appreciably higher than the average for county and borough asylums, and we observe in Table III. of the statistical tables that this figure has been as high or higher since 1900). Of the patients admitted no less than 122 were regarded as irrecoverable. As regards causation, alcohol or syphilis, acquired or inherited, was a determining factor in 112 of the admissions, being a percentage of 55·4 on the total admissions. Heredity of insanity was found in 80 out of 168 cases in which a history was obtained. General paralysis accounted for 20 per cent. of the deaths and tuberculosis for 16·2 per cent., the latter figure comparing favourably with that for asylums of similar size as given in the Blue-book. 16 of the admissions were found to be suffering from pulmonary tuberculosis on reception. Such cases are sent directly to special wards, an example which is worthy of being followed in all asylums. Dr. Menzies observes that the recent experience of the institution seems to strengthen the view that a large proportion of asylum tuberculosis is present on admission of the patients but in too early a stage to be suspected. He considers that "those who have for some years advocated the maintenance of an artificially high temperature in asylum wards have been helping to promote the spread of tubercle." In regard to diarrhœa and dysentery Dr. Menzies's experience supports the supposition that most asylum epidemics arise from a very small number of unrecognised chronic cases.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8530 births and 5288 deaths were registered during the week ending March 3rd. The annual rate of mortality in these towns, which had been 15·2, 17·2, and 17·3 per 1000 in the three preceding weeks, further rose to 17·4 per 1000 last week. In London the death-rate was 16·6 per 1000, while it averaged 17·8 in the 75 other large towns. The lowest death-rates in these towns were 8·9 in Northampton, 9·7 in Wallasey, 10·5 in Newport (Mon.), 10·8 in King's Norton, 11·4 in Handsworth (Staffs.), and 11·6 in East Ham; the highest rates were 22·2 in Liverpool and in Blackburn, 22·4 in Gateshead, 23·3 in Warrington, 23·5 in Stockport, 23·7 in Merthyr Tydfil, 24·9 in Bury, 25·8 in Nottingham, and 27·7 in Bournemouth. The 5288 deaths in these towns last week included 420 which were referred to the principal infectious diseases, against 400, 446, and 388 in the three preceding weeks; of these 420 deaths, 133 resulted from measles, 130 from whooping-cough, 67 from diphtheria, 42 from diarrhœa, 35 from scarlet fever, and 13 from "fever" (principally enteric), but not any from small-pox. No deaths from any of the principal infectious diseases were registered last week in Northampton, Ipswich, Norwich, Burton-on-Trent, Coventry, Bootle, Wigan, Rochdale, Barrow-in-Furness, Tynemouth, or Newport (Mon.); while they caused the highest death-rates in Bournemouth, Reading, Liverpool, Bury, Preston, Huddersfield, Leeds, York, and West Hartlepool. The greatest proportional mortality from measles occurred in Hornsey, Tottenham, Liverpool, Bury, Blackburn, Preston, and Leeds; from scarlet fever in West Hartlepool; from diphtheria in Huddersfield and Merthyr Tydfil; and from whooping-cough in Brighton, Bournemouth, Southampton, Reading, Birmingham, Leicester, York, West Hartlepool, Gateshead, and Rhondda. The mortality from "fever" and from diarrhœa showed no marked excess in any of the large towns. No deaths from small pox were registered last week in any of the 76 towns. There were six small-pox cases under treatment in the Metropolitan Asylums Hospitals at the end of last week, against two and five at the end of the two preceding weeks; one new case was admitted during the week, against two and three in the two preceding weeks. The

number of scarlet fever cases in these hospitals and in the London Fever Hospital at the end of last week was 2628, against 2839, 2734, and 2689 at the end of the three preceding weeks; 273 new cases were admitted during the week, against 283, 281, and 274 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 278, 289, and 328 in the three preceding weeks, further rose last week to 343, but were 92 below the corrected average number in the corresponding periods of the four preceding years. The causes of 70, or 1·3 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Leicester, Nottingham, Salford, Bradford, Hull, and 45 other smaller towns, while the largest proportions of uncertified deaths were registered in Portsmouth, Hanley, Birmingham, Aston Manor, Liverpool, St. Helens, Blackburn, Sheffield, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 16·8, 18·0, and 19·6 per 1000 in the three preceding weeks, declined again to 19·3 per 1000 during the week ending March 3rd, but was 1·9 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 10·7 in Leith and 13·6 in Perth to 21·4 in Greenock and 27·5 in Dundee. The 661 deaths in these towns included 26 which were referred to measles, 14 to diarrhœa, ten to whooping-cough, six to diphtheria, three to "fever," and two to scarlet fever. In all, 61 deaths resulted from these principal infectious diseases last week, against 47, 64, and 54 in the three preceding weeks. These 61 deaths were equal to an annual rate of 1·8 per 1000, which was 0·4 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of measles, which had been 18, 34, and 28 in the three preceding weeks, further declined to 26 last week, and included 16 in Glasgow, four in Paisley, three in Dundee, and two in Edinburgh. The deaths from diarrhœa, which had been 15, ten, and five in the three preceding weeks, rose again last week to 14, of which six occurred in Glasgow and five in Dundee. The fatal cases of whooping-cough, which had been four, five, and ten in the three preceding weeks, were again ten last week and included six in Glasgow and two in Dundee. The deaths from diphtheria, which had been three, nine, and two in the three preceding weeks, rose again last week to six, of which four were registered in Glasgow. The deaths referred to diseases of the respiratory system in these towns, which had been 108, 134, and 125 in the three preceding weeks, rose again to 153 last week, and were 39 above the number in the corresponding period of last year. The causes of 19, or nearly 3 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 20·5, 19·0, and 24·4 per 1000 in the three preceding weeks, further rose to 24·8 per 1000 during the week ending March 3rd. During the past four weeks the death-rate has averaged 22·2 per 1000, the rate during the same period being 16·5 per 1000 both in London and in Edinburgh. The 180 deaths of persons belonging to Dublin registered during the week under notice were three in excess of the number in the preceding week and included six which were referred to the principal infectious diseases, against one, one, and six in the three preceding weeks; of these, four resulted from whooping-cough, one from "fever," and one from diarrhœa, but not any from small-pox, measles, scarlet fever, or diphtheria. These six deaths were equal to an annual rate of 0·8 per 1000, the death-rates last week from the principal infectious diseases being 1·4 in London and 0·9 in Edinburgh. The 180 deaths in Dublin last week included 22 of children under one year of age and 55 of persons aged 60 years and upwards; the deaths of infants showed a decline, while those of elderly persons slightly exceeded the number in the preceding week. Nine inquest cases and ten deaths from violence were registered; and 61, or more than a third, of the deaths occurred in public institutions. The causes of four, or more than 2 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: J. J. Walsh to the *Blenheim*, on recommissioning; E. R. D. Fasken to the *Implacable*; and J. Jenkins to the *Hood*. Staff Surgeons: R. D. Jameson to the *Lancaster*, on recommissioning: G. T. Bishop and R. F. Clark to the *President*, additional for three months' course at the West London Hospital. Surgeons: W. C. B. Smith to the *Lancaster*, on recommissioning, and H. V. Wells to the *Eclipse*.

ROYAL HORSE GUARDS.

Surgeon-Captain Basil Pares, from 1st Life Guards, to be Surgeon-Major, vice Surgeon-Lieutenant-Colonel H. Rayner, retired (dated Feb. 17th, 1906).

ROYAL ARMY MEDICAL CORPS.

Lieutenant A. C. Osburn is appointed to the Station Hospital, Lebong, for duty. Major C. R. Elliott, Sanitary Officer, Western Command, is directed to proceed to Karachi and Quetta in connexion with proposals for accommodation, &c., connected with the Redistribution Scheme. Colonel O. E. P. Lloyd, V.C., Administrative Medical Officer of the 5th Division, at Dover Headquarters, is ordered to India, where he will fill a similar appointment at Mhow.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant-Colonel George Middlemiss having resigned his commission in the Volunteers, ceases to belong to the Army Medical Reserve of Officers (dated March 3rd, 1906). Surgeon-Major Charles N. Lee to be Surgeon-Lieutenant-Colonel (dated Feb. 14th, 1906). Surgeon-Major Francis J. L. Warwick, having resigned his commission in the Volunteers, ceases to belong to the Army Medical Reserve of Officers (dated March 3rd, 1906). Surgeon-Captain Campbell Boyd to be Surgeon-Major (dated Feb. 24th, 1906).

ROYAL ARMY MEDICAL CORPS (MILITIA).

Captain and Honorary Major (Honorary Captain in the Army) J. T. Simpson to be Major (dated Jan. 13th, 1906). Captain (Honorary Captain in the Army) A. H. Benson is granted the honorary rank of Major (dated Feb. 2nd, 1906).

IMPERIAL YEOMANRY.

West Somerset: Surgeon-Lieutenant C. Farrant to be Surgeon-Captain (dated March 3rd, 1906).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Forfarshire: Surgeon-Lieutenant-Colonel W. Chalmers-Cowan is granted the honorary rank of Surgeon-Colonel (dated March 3rd, 1906).

Royal Engineers (Volunteers): The Tyne Division (Submarine Miners): Surgeon-Major F. W. Gibbon is granted the honorary rank of Surgeon-Lieutenant-Colonel (dated March 3rd, 1906).

Rifle: The Queen's Rifle Volunteer Brigade the Royal Scots (Lothian Regiment): Laurence William Pole to be Surgeon-Lieutenant (dated March 3rd, 1906). 8th Volunteer Battalion the Royal Scots (Lothian Regiment): Surgeon-Lieutenant W. P. Simpson resigns his commission (dated March 3rd, 1906). 2nd (Earl of Chester's) Volunteer Battalion the Cheshire Regiment: Surgeon-Lieutenant A. MacLennan to be Surgeon-Captain (dated March 3rd, 1906). 2nd London Volunteer Rifle Corps: Surgeon-Captain S. A. M. Copeman to be Surgeon-Major (dated Feb. 12th, 1906).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

Scottish Command: Glasgow Companies: Lieutenant G. Gordon to be Captain (dated March 3rd, 1906).

DEATHS IN THE SERVICES.

Thomas Edmondston Charles, M.D., LL.D. Edin., F.R.C.P. Lond., Deputy Surgeon-General I.M.S. (retired), Honorary Physician to His Majesty the King, at his residence, Cliff Cottage, Flushing, near Falmouth, on March 2nd. He was the son of the late Rev. Dr. Charles of Kirkcowan and was born at Calcutta where his father was chaplain for the Church of Scotland. He received his medical education at the University of Edinburgh and after graduating entered the Indian Medical Service. Proceeding to India in 1857, he passed through the Indian Mutiny, taking part in the

notable forced march from Dugshai to Delhi. On his retirement he took up private practice at Calcutta. He retired from the service with the rank of deputy surgeon-general.

Henry Carden Herbert, M.D. Glasg., F.R.C.S. Irel., L.R.C.P. Edin., Deputy Surgeon-General, A.M.S. (retired), at his residence, 6, Elliot-terrace, Plymouth, on March 2nd, in his seventy-third year. The deceased was born in county Kerry, Ireland, and entered the army as assistant surgeon in February, 1857, being attached to the 45th Regiment. He became surgeon in May, 1872, surgeon-major in March, 1873, and brigade-surgeon in December, 1882, retiring with the rank of deputy surgeon-general in March, 1888. The deceased had no war service but was stationed for several years in Canada, St. Helena, and the Cape. He was in charge of the station hospital, Devonport, in 1880 for some time and subsequently held an appointment at the Horfield Depôt, Bristol. After his retirement he resided at Plymouth, where he was well known and highly respected.

THE NAVY ESTIMATES.

The Estimates for 1906–07, which have just been issued, show that a sum of £275,000 is provided for medical establishment and services. The amount for 1905–06 was £277,500.

THE ARMY ESTIMATES: A FORMATION OF A CIVILIAN RESERVE.

Provision is made in the Army Estimates, a memorandum in reference to which has just been issued by Mr. Haldane, for the formation of a reserve of civilian surgeons, who should possess some training in the special requirements of army field hospitals and should also be available for service, upon mobilisation, both at home and abroad. Steps are to be taken to provide the necessary subordinate auxiliaries to such a reserve force. The Estimates for 1906–07 for medical establishment, &c., show a sum of £490,000, as against £482,000 in 1905–06.

ARMY RECRUITING.

The annual report for the year ending Sept. 30th last has been recently issued. The conditions that obtained during the period included in the report by Major General Miles, Director of Recruiting and Organisation, were of an exceptional nature but speaking generally the results cannot be regarded as satisfactory. The number of recruits who joined the regular army amounted to 35,351 and for the militia 29,941, showing a decrease for both the regular army and the militia as compared with the previous 12 months. It may be remarked that medical inspection has been more stringent and the ratio of medical rejections consequently increased. The general result is that as regards infantry of the line in the year under review about 21,270 men for nine years' service have been obtained. The appointment of a district medical inspector of recruits appears to be one of the important changes that have taken place.

DENTAL SURGEONS IN THE ARMY.

The services of an additional dental surgeon are required for duty with troops in the United Kingdom from April 1st next. He will be required to devote his whole time to military duty and will receive an inclusive salary of £365 per annum and travelling expenses. The period of engagement will be for one year and under conditions specified in the contract and the necessary dental appliances will be provided. Applications should be addressed to the Secretary of the Army Council, 68, Victoria-street, London, S.W., not later than March 21st.

MILITARY TRAINING.

There seem to be several schemes in the field at the present time which have one aim and object in common—namely, that of overcoming our unpreparedness for war while avoiding conscription. It may be said of them that they would not only prove advantageous from a military but from a physical and moral point of view, and in that respect have a medical interest. Lord Roberts's proposals, for example, have of late assumed a more definite and practical shape and he has, as everybody knows, been urging their general adoption with all possible ardour in the conviction that they are not only absolutely needed as a matter of national safety but that they are very reasonable and practically quite capable of being carried out. In the event of his proposals and of his scheme for a "citizen army" being taken up in anything like an enthusiastic and comprehensive way it would infuse a new spirit into public opinion and have a favourable effect on all branches of the military service. In another direction Colonel Pollock's scheme, known as the *Spectator* experimental military training, will prove an interesting and important experiment. Colonel Pollock contends that it is feasible to train raw recruits in six months up to a standard of efficiency equal to that now attained in as many years by any regulars provided that the officer conducting the training is allowed a free hand. Assuming the success of the experiment it may follow that the militia can be rendered capable of furnishing an efficient national army of reserve. The result of this experiment will consequently be awaited with much interest.

COMPRESSED DRUGS IN THE GERMAN ARMY.

In an army on active service the *impedimenta* should be reduced to the lowest possible limit compatible with efficiency and although drugs do not, comparatively speaking, take up much room, still, everything that conduces to diminution of bulk or weight is worthy of consideration. It was not until 1897, according to Apothecary-Major Kopp of the French army, that the German military medical authorities bethought themselves of replacing the little packets of powders which had hitherto been supplied to their hospitals and dispensaries by something that would be less bulky and more readily conserved during the exigencies of warfare. Compressed tablets seeming to offer most practical advantages experiments were accordingly made with some of the simpler powders in daily use and the result proving satisfactory the process was extended to the more complicated medicaments. According to the latest edition of the medical regulations 18 different kinds of compressed tablets are now officinal in the pharmacopœia of the German army. In the subjoined list the numerals represent the quantity in grammes of the active ingredients in each tablet: citric acid, 0·60; salicylic acid, 0·50; antipyrin, 0·50; mint leaves, 2·00; calomel, 0·20; corrosive sublimate, 0·50; morphine, 0·01; phenacetin, 0·50; ipecacuanha and opium (equal parts), 0·30; ipecacuanha and tartar emetic (19 parts and one part), 0·65; opium, 0·06; rhubarb, 0·50; quinine, 0·30; bicarbonate of sodium, 1·00; carbonate of sodium, 1·00; tannic acid, 0·06; "Resolutive" tablet (sal ammoniac, 25 parts; liquorice, 25 parts; benzoin, one part), 1·00; and Schleich's tablet for hypodermic use (morphine 25 parts, cocaine 10 parts, and chloride of sodium 20 parts), 0·55. In addition to the foregoing tablets containing carbolic acid were formerly in use but have now been abandoned because the experience gained by medical officers of the German ambulances in the Transvaal showed that they were liable to melt during hot weather. As it is difficult to control not only the quality but also the quantity of the active ingredients in compressed tablets the military medical authorities decided to manufacture the supply themselves and to this end have established the necessary machinery at the headquarters of each army corps. The machines employed are for the most part American or else constructed according to American models. Up to 1901 the corrosive sublimate tablets were prepared in the machine invented by Bernegausch but as the process was found to be extremely dangerous to the workmen and, moreover, proved to be very expensive, the manufacture was suspended and all demands for this form of tablet are now met by purchase in the open market. The tablets prepared by the medical department are flat on both sides and have a diameter of 12 millimetres, excepting only the mint tablets, which are 20 millimetres in diameter, and those of Schleich, which are bi-convex, with a diameter of eight millimetres. Apothecary-Major Kopp admits that by substituting compressed tablets for powders wrapped loosely in paper the Germans have realised an incontestable advance, but he also thinks that this advance is more apparent than real. The French army so far possesses only two kinds of compressed tablets, but in the Central Pharmacy of the medical department they have all the appliances for the production of an unlimited supply. By distributing this machinery in so many directions the Germans clearly place themselves at a disadvantage.

DONATIONS AND BEQUESTS.—St. Mary's Hospital has received an anonymous gift of £1000 in relief of its present great financial difficulties.—The treasurer of St. Bartholomew's Hospital has received £100 from Sir Thomas Smith towards the rebuilding fund. This is a third instalment.

Correspondence.

"Audi alteram partem."

STATICS AND DYNAMICS IN THE TREATMENT OF LOCOMOTOR ATAXIA.

To the Editors of THE LANCET.

SIRS,—So long as the etiology of this affection is not fully understood the treatment is likely to be indifferent in its results. The pathology of locomotor ataxia consists essentially in a loss or impairment of the guiding sensations normally passing from the lower extremities to the brain centres. My idea in making use of the following method of treatment originated in the view that by giving the limb muscles more work to do in the way of lifting or overcoming resistance they would be put more upon the stretch and thereby a stronger sensation would be sent up the conducting nerves and columns. This sensation being stronger would have more chance of passing through the partially obstructed routes and of thus reaching the interpreting cerebral areas. In other words, the diminished muscle sense would be stimulated and increased.

One may look upon a victim of this affection as suffering from vertigo in the feet; he fails to realise where the soles of his feet are. There is a light-footedness—comparable to the light-headedness of vertigo—the feet and legs are unstable, jerky, and jumpy. The power of directing the feet and legs and stepping out properly and regularly is much impaired, resulting in the characteristically exaggerated and unsteady gait. Balancing power is greatly lessened. The patient seems to have lost ballast and the sense of proportion and weight is diminished. It has often seemed to me that some of these conditions and deficiencies might be improved by increasing the force the muscles have to overcome and by supplying the ballast that seems to be lost. A recent fashion was to stretch the spinal tracts from above by suspending the patient by the head. The treatment I recommend and have found very helpful consists of stretching the nerves and muscles from below.

I have special boots made with lead in the soles varying in amount from two to three pounds. The boots are ordinary stout leather, laced ones with a layer of sheet lead in the sole between the layers of leather extending from the toe to the instep. In tabes the foot in taking a step is brought forcibly to the ground upon the heel, as proved by the heels being worn away long before the soles. For this reason I direct that only the soles of the boots should be loaded and not the heels. Both of the cases in which I have employed the loaded boots are well-marked instances of tabes dorsalis.

A man, aged 35 years, has been suffering from this disease for over ten years and has had long courses of treatment, both hospital and private. For some months during severe attacks of laryngeal adductor spasm the necessity for tracheotomy was imminent. He has latterly been too unsteady to venture out of-doors, unless occasionally with a great effort, and leaning on his wife's arm. He describes the effects of wearing the heavy boots as giving him much more control over his feet and legs both when sitting and walking. The muscles seem stronger and there is much less spontaneous, irregular, and uncontrollable movement. He can sit quietly in the chair with the boots on, as there is much less jerking and jumping of the feet. He says that he seems to have much more feeling in the balls of the toes and can make more use of the toes when wearing the boots. He can rise from a chair much better. When standing he can balance himself much better and can even stand alone. This he could never attempt to do before using the special boots. When walking he has greater confidence, can measure his steps much better, and can bring the foot down in a more natural way—much less heel action. He can also regulate his pace and walk slowly if he wishes, which was not easily done before. He is now walking distances of from two to three miles and only uses a stick to assist him.

A man, aged 33 years, has been suffering from tabes for over three years and has all the characteristic indications. Deficient action of the mucous membrane of the nose and pharynx brought him under my care. This was accompanied by shortage of mucous secretion in the stomach and bowels, resulting in indigestion with much flatulency and intractable chronic constipation. The mucin treatment locally and generally has successfully overcome these troubles. He was a patient a year ago at Queen's-square Hospital for Paralysis and has had all kinds of treatment, including Frenkel's exercises. Nothing has done him any good until the last few weeks, when he has been wearing the weighted boots. He finds that he can balance himself much better, can rise up and turn round well, and is able to walk in the dark a great deal better. There is much less jerking movement of the legs. He says his fear of falling has gone and that walking in a strong wind is quite different now. Since he feels his feet much more with the heavy boots on he does not require to watch them so attentively in walking. This patient has gone on so well and gained such confidence that he can almost dispense with a stick entirely. In walking he says his feet no longer describe a semicircle and that he can bring them more accurately to the ground. The neighbours in the country village where he lives have remarked on his improved gait. This man I have also tried with weights in his hands and pockets, but he says that the heavy boots have helped him most. When indoors in his slippers he again loses all control of his feet and they jerk and jump about.—I am, Sirs, yours faithfully,

W. STUART-LOW,
Assistant Surgeon, Central London Throat and Ear Hospital.

Welbeck-street, W., March 1st, 1906.

ANTERIOR OR POSTERIOR GASTRO-ENTEROSTOMY?

To the Editors of THE LANCET.

SIRS,—I feel sure that all who are interested in the surgery of the stomach will cordially approve of the congratulation you offer to Mr. H. J. Paterson upon the contributions he has made to this subject in his recent Hunterian lectures. Where there is so much that is excellent it may seem almost churlish to discover a fault. But I think Mr. Paterson will not be surprised to hear that on the question of the relative merits of anterior and posterior gastro-enterostomy I am in complete and confident disaccord with him. And it is not only with him, I find, but with the writer of the leading article in THE LANCET of March 3rd, and further with a recent contributor to your columns, Mr. W. H. Battle, who writes (Feb. 3rd, p. 276, column 1): "The anterior operation, moreover, possesses advantages which are likely to make it the more favoured operation of the future"; and also, "It is very probable that the anterior operation has been performed much more frequently than the posterior." Now whereas a single statement of opinion may well be left unchallenged the almost simultaneous publication of three authoritative opinions such as these cannot be ignored without a tacit admission that the weight of argument and of experience is on the side of the writers. I must, therefore, record once again my opinion that every argument and all experience show that the posterior operation as now performed is in every particular a better operation than the anterior. At the outset I may say that I do not wish to speak ill of my friends and the anterior operation has served me well; I have had, and still have, good results from it. But I never now perform it if the posterior operation is possible. My last two cases of gastro-enterostomy for carcinoma have been performed by the anterior method but it was only because the invasion of the transverse mesocolon by growth made access to the posterior surface almost impossible.

I will take the statement made in your leading article first. You say: "A careful examination of a long series of cases in which the posterior operation has been done will show that it is by no means free from dangerous complications; especially is there a liability to the production of an internal hernia by the passage of small intestine through the opening made in the mesocolon." Unhappily, I can speak with too much experience upon this point. One of my patients died from such a hernia and two others have had such herniæ discovered when the abdomen was reopened, in one case by Mr. A. E. Barker, in another by myself. But with the present method of performing the operation, when the edges of the mesocolon are sutured to the jejunum close to the anastomosis, there is no possibility of a hernia occurring. Mr. Paterson on this point writes: "Whether this will prevent the occurrence of internal hernia

remains to be seen, possibly it will, but it is also possible that the adhesions may constrict the anastomotic opening." The word "possibly" here is rather weak. By stitching the edges of the mesocolon to the jejunum the opening into the lesser sac no longer exists, the passage of bowel through it, therefore, cannot occur. With regard to the possible formation of adhesions, all I can say is that adhesions have never been known to form and that there is no reason why they should form if the operation is properly done, since no rough or damaged places are left. (I may here irrelevantly express my belief that many post-operative adhesions are due to sepsis, but of that I will write anon.) It is worth while to remark that in two cases where I had to operate a second time after gastro-enterostomy had been performed by other surgeons the cause of the persisting vomiting was found to be a constriction of the distal loop by adhesions. In both the anterior operation had been performed. The argument against the posterior operation that it makes possible a hernia of intestine into the lesser sac I admit was valid in the early days of the operation before the technique was fully developed. Now such an occurrence is impossible.

Your next argument is: "It is certain, too, that the posterior operation is more difficult and takes longer to perform than the anterior operation." Is it certain? It is no uncommon thing for a surgeon who has seen me perform posterior gastro-enterostomy to remark that the operation "looks easy enough." Questions of ease or difficulty are largely personal, and I will not say more than this, that whether easy or difficult there is little or nothing to choose between the two methods. Nor is there anything of material difference in the time occupied. I have probably performed the posterior operation from beginning to end in less than 20 minutes on at least a dozen occasions, and in the very great majority of cases the whole time occupied (from the first incision to the last stitch) is under half an hour. I do not find there is any difference at all between the two methods, and there is no reason why there should be, for the manipulations in the two are exactly the same for the only part of the operations that consumes much time, that is, the stitching.

Mr. Paterson refers to regurgitant vomiting and you say "obstruction at the efferent opening is the real cause." I quite agree that obstruction is the real cause but it may be surely at the afferent opening as well as at the efferent. The proximal jejunal limb becomes "waterlogged" and by kinking obstructs, it may be, both afferent and efferent openings. Be that as it may, I agree that obstruction is the real cause. Regurgitant vomiting means high intestinal obstruction and that it is due to obstruction at the anastomosis is shown by the fact that it is relieved by a short-circuiting operation by uniting the afferent and efferent limbs of the jejunum. The cause of this obstruction I submit, therefore, is to be found in the "loop." It is not a question of anterior or posterior methods primarily at all. If a loop is left in the posterior method regurgitant vomiting, as my cases and Mayo's also show, is just as likely to occur as after the anterior method. But—and here lies the great advantage of the posterior operation—in the anterior method a loop is absolutely necessary; in the posterior as we now perform it there is no loop at all. The jejunum lies in its normal position, the relative position of the parts (as may be seen on transverse frozen sections) is very little if at all altered from the normal. The other forms of intestinal obstruction that have followed the operation, excluding obstruction by a Murphy's button, are due to rotation of the anastomotic loop, which has only occurred once after the anterior operation, and to strangulation over the proximal limb of the jejunum of small intestine which passes in between this loop and the under surface of the mesocolon, either from right to left or from left to right. As the operation of posterior gastro-enterostomy is (or should be) now performed, these strangulations cannot occur; by the anterior method they are always possible, because of the necessary existence of a loop. Strangulation of the transverse colon by the jejunum occurs, of course, only after the anterior operation.

Next with regard to jejunal ulcer. Mr. Paterson says: "This statement"—that is, that the ulcer occurs oftener after the anterior operation—"is not necessarily correct." But Mr. Paterson had not found all the recorded cases nor had Mr. Battle when writing his paper. Up to the present 33 cases have been described; in 29 of these the nature of the operation is mentioned. In 17 cases anterior gastro-enterostomy had been performed; in four cases anterior gastro-enterostomy with entero-anastomosis; in one case anterior gastro-enterostomy in Y; in six cases posterior gastro-enterostomy with a long loop; and in one case posterior gastro-enterostomy with a long loop and entero-anastomosis. The point which is clearly made from this is that it is the low opening in the jejunum which, so far as any part of either method is concerned, is a factor in the causation of the so-called "peptic" ulcer. Mr. Battle evades this point, I think, when he states that it is very probable that the anterior operation has been performed more frequently than the posterior and that therefore jejunal ulcer would have occurred oftener after the former operation. I should rather say that it is almost certain that the posterior operation has been performed far more frequently. At least of this there can be no question that the surgeons who are doing the largest number of these operations confine themselves almost exclusively to the posterior operation. And, after all, that, it seems to me, is the really important point. We have all practised the anterior operation as a routine operation; we still practise it occasionally, but we are convinced from the results of the cases that the posterior operation is the better. It is not a question of good and bad but of good and better.

I do not think the position is accurately stated when it is said that "the wave of fashion has been increasingly in favour of the operation" any more than it would be to say that the wave of fashion is increasingly in favour of removing the axillary glands in carcinoma of the breast, or of doing something more than removal of the sac in the radical operation for inguinal hernia. Fashion has in it something of caprice; the choice of the posterior operation is the result of a considered and well-reasoned opinion that it is a safer and, so far as after results are concerned, a more successful operation than the anterior. It is a "fashion" established by long experience and sanctioned, I think I am right in saying, by all those who are working extensively at this subject. But I think it necessary to say that the posterior operation should not be performed in a haphazard way but that certain reasoned principles should always be observed; these concern the position, and direction, and size of the opening in the stomach, the position and direction of the opening in the jejunum, and the suture of the mesocolon to the jejunum after the anastomosis is complete. It is because of these points that the immediate and remote results of posterior gastro-enterostomy are better than those achieved after the anterior operation. If no regard is paid to them then there is no advantage in the posterior method. The posterior operation is the better, not because it is posterior, but because, being posterior, it permits certain principles to be observed, which on purely mechanical grounds are impossible in the anterior operation.

I am, Sirs, yours faithfully,

Leeds, March 4th, 1906. B. G. A. MOYNIHAN.

CONGENITAL HYPERTROPHY OF THE PYLORUS.

To the Editors of THE LANCET.

SIRS,—Mr. H. J. Paterson in his admirable Hunterian lectures[1] on gastric surgery discusses the treatment and mode of operation for the infantile variety of pyloric hypertrophy. His statistics of pyloroplasty are unduly favourable, showing six recoveries out of nine cases. Compared with his collected results of gastro-enterostomy, 11 recoveries out of 25, pyloroplasty would seem the more suitable operation. My figures give much the same results as regards gastro-enterostomy—viz., 16 recoveries out of 34. Of pyloroplasty the results are not as good as the figures given by Mr. Paterson, for only seven out of 14 got well from the operation and of these two died subsequently, 54 days and three months later, from gastro-enteritis.

The object of this letter is to point out that statistical results of operations are of little value, for the prognosis depends on the marasmic state of the infant when it reaches the surgeon's hands. This is well shown by eight of my own cases on which Mr. Clinton T. Dent performed pyloroplasty. Three private patients were operated on within six weeks of birth and all have recovered apparently perfectly. The other five were hospital cases, all more or less marasmic, and of these two died shortly after operation, two died subsequently as above stated, and one recovered but almost died from severe gastro-enteritis. These

[1] THE LANCET, March 3rd, 1906, p. 577.

cases do not support Mr. Paterson's views on the benefit to be derived from breast-feeding, for the three private patients were breast-fed infants. I think he speaks much too optimistically of the advantages of careful feeding and lavage. I think he is inclined to give too much credit to reports of cases cured without recourse to operation. Many of these are of doubtful character, the diagnosis being based on vomiting, constipation, and perhaps visible peristalsis and the presence of a tumour. Seeing that a tumour is felt with great uncertainty in early stages, it is conceivable that it may be supposed to be felt when it does not really exist. I have seen several *supposed* cases get well without operation, but in no one of them did I agree with the diagnosis. On the other hand, I have no doubt that a mild degree of the condition can exist without proving fatal, for of this we have distinct evidence in the cases seen in older children. Yet of 15 cases which have come under my notice all have been verified at operation or post-mortem examination. Only two of the last ten have been treated by purely medical measures and both succumbed. I write this letter with the view of insisting on the importance of early surgical interference, for it is on this rather than on the particular operation that success depends. I fear that Mr. Paterson's observations will tend to make physicians procrastinate unduly.

I am, Sirs, yours faithfully,

Upper Brook-street, W., March 3rd, 1906. EDMUND CAUTLEY.

THE FEELING OF NAUSEA EXPERIENCED DURING EARTHQUAKES.

To the Editors of THE LANCET.

SIRS,—In studying the earthquakes of Great Britain, my attention has not infrequently been drawn to a feeling of nausea experienced during the comparatively slight shocks which visit this country. If the evidence had been supplied in answer to definite questions, some doubt might have been felt as to its reality. But as the information given was not at first prompted in any manner, and as a feeling of nausea is by no means a well-known effect of an earthquake shock, either weak or strong, it would seem that the records of its occurrence are to a great extent trustworthy and that the phenomena reported deserve attention. In my studies of more recent British earthquakes, including the second of those mentioned in the next paragraph, I inserted a question on the subject with a view of ascertaining the duration of the feeling.

The British earthquakes referred to in this note are the Hereford earthquake of Dec. 17th, 1896, and the Doncaster earthquake of April 23rd, 1905. Some interesting observations were also made during the great Charleston earthquake of August 31st, 1886. The Hereford earthquake occurred at 5.32 A.M. It originated almost simultaneously in two foci, the centre of the more important being about three miles south-east of Hereford and that of the other about three miles north-east of Ross in the same county. The shock, which lasted on an average for nine or ten seconds, was strong enough to cause slight damage to buildings within an area of 724 square miles. In Hereford itself more than 200 chimneys had to be repaired. The shock was felt over an area of about 98,000 square miles and was strong enough to make doors, windows, &c., rattle at a distance of 180 miles from the origin. It should be noticed that the period of the vibrations increases as the earth-waves spread outwards. Close to the centre the general impression produced was that of riding in a carriage without springs, the vibrations at one place being so fierce and quick that they resembled the beats of an engine going at 50 miles an hour. Farther away, at distances of about 90 or 100 miles, the movement was of a pleasant, gentle, undulating character, more like that felt during the rocking of a ship at anchor or in a carriage provided with good springs. But probably in no part of the disturbed area did the period of the principal vibrations exceed one-third or one-half a second. As to the range of the movement, it cannot have been more than a small fraction of an inch even in the neighbourhood of Hereford. As a rule, the feeling of nausea experienced during this earthquake was only temporary, though with one observer at Worcester (21 miles from the centre) it lasted all day. In two cases, one seven and a half miles and the other 15 miles from the centre, persons are said to have been actually sea-sick but I have not this information from the sufferers themselves. The feeling was noticed at considerable distances from the centre—for example, at Weymouth (106 miles), Richmond, Surrey (110 miles), London (113 miles), and Bradford (125 miles), the movement at the last-named place being so slight that nothing more than a weak tremor was felt.

The Doncaster earthquake occurred at 1.37 A.M. on Easter Sunday, 1905, and also originated nearly simultaneously in two foci, one about half a mile north of Bawtry, the other about four miles east of Crowle in Lincolnshire. The disturbed area contained about 17,000 square miles and the shock was strong enough to make doors, windows, &c., rattle to an average distance of 75 miles from the principal focus near Bawtry. There was no injury caused to buildings in any part of the disturbed area. A feeling of nausea was rather frequently experienced (by about 1 in every 50 observers), as often by those who were asleep as by those who were awake, and by men as much as by women. It was felt as far as Rippingale, near Bourne in Lincolnshire, which is 31 miles from the principal focus. With some the feeling was only momentary, with the majority it lasted for a few minutes, while one or two felt sick for an hour or more afterwards. Two observers, at five and eight miles respectively from the centre, inform me that the shock made them sick.

More remarkable still is the evidence furnished by the disastrous earthquake of Charleston in 1886, which was felt to an average distance of 950 miles from the centre. In the central part of the disturbed area the feeling of nausea was seldom experienced or, at any rate, recorded and it is not improbable that it passed unnoticed by persons in their wild hurry to escape from falling buildings. But outside the area, in which the shock was strong enough to overthrow vases and ornaments or make pictures swing, records are somewhat common and it is noteworthy that they come from two places more than 800 miles from Charleston, where the movement was too slight to make even doors and windows rattle and, indeed, was only just perceptible to the unaided senses.

The observations described above thus show that a feeling of nausea may be produced in some persons by an earthquake shock lasting not more than eight or ten seconds and consisting of vibrations of which the total range is only a small fraction of an inch and of which the period is little, if at all, more than half a second.

I am, Sirs, yours faithfully,

CHARLES DAVISON, Sc.D., F.G.S.

Edgbaston, March 1st, 1906.

OFFICIAL STANDARDS OF PURITY FOR JAMS.

To the Editors of THE LANCET.

SIRS,—May I crave the courtesy of your space for the purpose of indicating one or two errors in your note on jams and jam-making in THE LANCET of March 3rd, p. 613? You rightly state that jam is now an important article of every-day diet and that it is essential for so much used an article to be pure. But in warning the public to beware of adulteration you write as though adulteration—i.e., the mixing of fruits and vegetables other than those specified on the label—were the equivalent of impurity, and as though cheap jams were necessarily inferior from a dietetic point of view to more expensive ones. Neither of these things are true. For example, if we take a high-priced jam, such as raspberry, cheapened so as to bring it within the reach of the poorer classes, the articles with which it is "adulterated" consist usually of apple or gooseberry. Now, while it is true that we have here a technically adulterated article, it is not true that it is in the slightest degree unwholesome. I am also quite at a loss to know what are the "grosser substitutes" used, as fruits are so cheap that it would not pay manufacturers to look elsewhere for ingredients. When you refer to vegetable marrow—although this could not be objected to on the score of wholesomeness—I am of opinion that this is knowledge derived from housewives' and not manufacturers' practice.

There is also a confusion in your note concerning the respective health values of beet and cane sugar. In advising that only cane sugar should be used you imply that beet sugar is unwholesome. The truth, again, is that refined beet sugar—ordinary white lump or crystal—is purer than cane, having gone through an extra refining process. Your warning against glucose, which in all probability is due to confusing the lump glucose used by brewers and the liquid form used by confectioners, is also wide of the mark. The

best comment upon this is that in America, to which you make reference, glucose is an everyday article on the breakfast-table and tea-table. Nor is it true that the reason for using glucose is its cheapness. The reason for using glucose is to prevent granulation and I am rather curious whether you would prefer the use of cream of tartar or some similar agent. I may also point out that the great cause of cheap jams is that with the exception of the fruit they are manufactured from perfectly wholesome by-products of the confectionery trade. It is not too much to say that the price of jam bears no relation to the market price of sugar. The manufacturing confectioner must choose between obtaining a market for these products and throwing them away.

I should not have trespassed on your space, but bearing in mind that wholesome jam can at present be bought at from 2*d.* per pound upwards it is important that the poor should not be deprived of a nutritious food, either by misleading, though well-intentioned, advice, or by Acts of Parliament passed under false impressions.

I am, Sirs, yours faithfully,

March 6th, 1906. MORRIS STREIMER.

*** Mr. Streimer mistakes our contentions *in toto*. We never hinted that "raspberry jam" adulterated with apple or gooseberry is unwholesome. But it should not be called raspberry jam, at any rate without explanation. If Mr. Streimer were to ask for two ounces of tea and he was supplied with one ounce of tea and one ounce of coffee, would he be satisfied? As regards beet sugar, we said nothing about it. With respect to glucose, we know perfectly well that glucose will not crystallise and that this is the reason put forward for its use. But the fact remains that the price of cane sugar is 25*s.* per cwt. and that of glucose is about 10*s.* If glucose were the crystallisable substance and cane sugar the non-crystallisable would jam manufacturers use the latter? We have no objection upon sanitary grounds to "raspberry" jam being made of apples or gooseberries or beetroot provided that the fact is announced on the label. In the same way jams made with glucose should be so labelled. Mr. Streimer should have no objection to this course. He says that substitute jams are wholesome and that glucose is better than cane sugar as it does not crystallise. Therefore, let him tell his customers plainly what they are buying. With regard to the statement that the price of jam bears no relation to the price of sugar we remember that when in 1904 the price of sugar went up the jam manufacturers said precisely the opposite.—ED. L.

INFANT FEEDING AND EPIDEMIC DIARRHŒA.

To the Editors of THE LANCET.

SIRS,—I should deem it a very great favour if you would afford me space in your journal to refer very briefly to the leading article in your issue of Feb. 24th, p. 533, in which you discuss a paper written by me for the *Journal of Hygiene* on Epidemic Diarrhœa. In this article you very justly point out that the numbers I dealt with—namely, 139 deaths in infants from diarrhœa—are not sufficient to give a trustworthy indication of the relationship between the diets on which infants are reared and their susceptibility to fatal diarrhœa. I supported my inferences by quoting Dr. A. Newsholme's work on the same subject. My numbers were small because from the information available I only selected cases where there was no suggestion of uncertainty as to the diet on which the infants were being fed immediately prior to their attack of diarrhœa. Doubtful and ambiguous cases I discarded.

In the report on the health of Finsbury for 1905 Dr. G. Newman has tabulated the diets of 371 infants dying from diarrhœa in the years 1902–05. Of these, 303 were fed either on condensed milk or cow's milk in the proportion of 42 to 58. My figures based on smaller numbers and arrived at by my own method in the years 1903–04 give almost identical results for the same borough. Out of 107 artificially fed children dying from diarrhœa I found that 41 per cent. were fed on condensed milk and 59 per cent. on cow's milk. Dr. Newsholme of Brighton has investigated the cases of 71 infants fed on cow's milk or condensed milk and dying from diarrhœa. Of these he found that 45 per cent. were fed on condensed milk and 55 per cent. on cow's milk.

Both in Finsbury and Brighton the diets of children surviving for the first year of life have been recorded, the Finsbury figures being based on 554 children and the Brighton figures on 608. Of these some 70 per cent. were breast-fed. The following are the results put briefly and as percentages:—

	Condensed milk.	Cow's milk.
FINSBURY.		
Deaths (107) from diarrhœa, 1903–04	41	59 = 100
Deaths (303) ,, 1902–05	42	58 = 100
Survivors (161)	35	65 = 100
BRIGHTON.		
Deaths (71) from diarrhœa	45	55 = 100
Survivors (151)	27	73 = 100

If the percentages for "survivors" are compared with the percentages for "deaths" immediately above them in the vertical columns it will be seen that a strong case against condensed milk has been made out in both Finsbury and Brighton by entirely independent observers. Similar results have been obtained by the medical officer of health of Croydon. May I express the opinion that there is more in this than coincidence and that when the Finsbury figures amount to thousands, as ultimately they will, it will be found to be a fact, and not a guess from insufficient data, that infants fed on condensed milk are more liable to fatal diarrhœa than infants fed on cow's milk.

I am, Sirs, yours faithfully,

J. E. SANDILANDS.

Launceston-place, Kensington, W., March 6th, 1906.

LOW-TENSION HIGH-FREQUENCY CURRENTS AND ULTRA-VIOLET RAYS.

To the Editors of THE LANCET.

SIRS,—I regret that in my paper on a New Method for the Production of Ultra-violet and Other Rays, published in THE LANCET of March 3rd, an unfortunate, but obvious, error occurs due to a mistake in copying from my original draft. In the second paragraph on p. 588 there is this sentence: "These experiments induced me to have constructed a third machine which would deliver ten ampères at 80 volts with a periodicity of 360,000,000 per second." "Second" should read "minute," as the context clearly indicates.

With respect to your sympathetic references to my article under the head of "Annotations," I note your comment that I do not state how I arrive at my measurements in the claim I put forward of being able to pass from six to seven ampères through the body without any painful or disagreeable sensation. My reply is that what are known as "dead-beat" meters were used and that these had previously been subjected to the most careful and stringent tests by well known and reliable London makers. Then, too, by short-circuiting the apparatus, with the meter in circuit, corresponding, and at the same time confirmatory, measurements were obtained. I need hardly add that I shall be happy to afford every facility for an independent test being made of the machine and the new ray tube.

I am, Sirs, yours faithfully,

Cardiff, March 6th, 1906. J. CUNNINGHAM BOWIE.

THE EMPLOYMENT OF CHLORIDE OF ETHYL AS A GENERAL ANÆSTHETIC.

To the Editors of THE LANCET.

SIRS,—Your remarks in THE LANCET of March 3rd, p. 615, upon the use of chloride of ethyl as a general anæsthetic and the inferences which you draw from the sad fatality recently reported seem to call for further comment. Those who have frequent opportunities of administering this anæsthetic are almost unanimous that it is a most valuable and safe agent in suitable cases and in experienced hands, while they are equally agreed that it is certainly not an anæsthetic to be employed by the inexperienced. It is, in fact, the ideal anæsthetic for operations of such a length that gas or gas and oxygen would give too transient an anæsthesia, while ether would give an unnecessarily long one; in other words, for operations requiring an anæsthesia of from 50 to 120

seconds. It is also most valuable as an antecedent to ether or chloroform.

I have had many opportunities of noting that some patients exhibit a very marked idiosyncrasy towards this drug and become anæsthetised by it with almost startling rapidity. In such subjects unless a very close observation is kept by an anæsthetist who from constant experience is thoroughly *au fait* with the signs and symptoms of profound anæsthesia an overdose is very liable to be administered. I have on several occasions anæsthetised patients in as few as three or four inspirations from an apparatus containing five cubic centimetres of the drug and noted signs of profound narcosis so deep that if the administration had not been instantly discontinued it is easy to imagine that a fatality would have resulted. Again, when this drug is used as a preliminary to etherisation anæsthesia from the latter agent is sometimes surprisingly rapid, and it is by no means unusual for the patient to be ready for operation in under two minutes. These peculiarities, while they are decidedly advantageous in the case of a skilled anæsthetist, should make the ordinary practitioner, who perhaps only rarely acts as an anæsthetist, pause before using so powerful an agent, and it is obvious that ethyl chloride should never be used by an unqualified man.

In the list of eight fatal cases which you mention there are included at least two where death was definitely due to "rigidity of the jaws" or "respiratory spasm," while two more, classified as "respiratory failure" and "asphyxia," were very probably due to the same cause. Spasm of the jaws, occurring as a part of general muscular rigidity, is a very common phenomenon in ethyl chloride anæsthesia, and so much is this the case that it should be a constant rule never to commence the administration without inserting a prop between the jaws, so that the tongue may be instantly pulled forwards in case of need. This rule applies with special force to edentulous patients whose mandibles, should spasm occur, overlap the maxillæ and may even press against the nose, rendering it almost impossible to open the mouth, even if a suitable mouth-wedge be at hand. The cases described as fatal from syncope may quite possibly, in my opinion, have been due to an overdose in patients who possessed an unusual susceptibility to the drug, and I venture to think that, if the possibility of this idiosyncrasy had been guarded against, and if a prop had been used in every case, the list of fatalities would have been a very much smaller one. Ethyl chloride is very liable to produce vomiting in patients whose stomachs are not empty and some of the recorded fatalities were due to inhalation of vomited material. This anæsthetic has so many and such great advantages to the operator, to the anæsthetist, and to the patient alike, that it would be a great pity if the undue prominence given to the report of the recent inquest in the lay press, and the comments thereon in THE LANCET, should cause an unmerited distrust of ethyl chloride in the minds of the laity or of the profession.

I am, Sirs, yours faithfully,

ARTHUR S. MORLEY,
Anæsthetist to the Samaritan Free Hospital, &c.
Gower-street, W.C., March 3rd, 1906.

THE SALARIES OF POOR-LAW MEDICAL OFFICERS.

To the Editors of THE LANCET.

SIRS,—It is much to be hoped that the Poor-law Commission may make recommendations with the double object of improving the remuneration for the medical treatment of the poor and also the conditions under which the poor are treated. The whole profession will agree with the former object, but there may be some difference of opinion as to the need of improved conditions. And yet it is impossible for anyone who has seen much of practice among the poor to fail to recognise that the Poor-law medical officer is not generally a popular person. The patients cling to the pay doctor, the club doctor, the dispensary, and the out-patient department, but they seldom welcome the suggestion that the parish doctor should be called in. One may freely admit that this is due to the office and not to the personality of the officer and may even regard it as a sign of grace that the patient shrinks from the stigma of pauperism. But those who are old enough to have seen the changed attitude of the London poor to their workhouse infirmaries must admit that there is less objection to being a pauper in one of the modern palaces than there was in the days before the infirmaries could be thus described. I understand that in some districts in London when a vacancy has occurred in the Poor-law medical service the authorities have appointed several out-door medical officers, allowing the patients to choose which officer they will call in and dividing the salary amongst the various doctors according to the number of relieving officer's "orders" to which they have attended. It seems to me that in some such way as this the twofold object I have indicated above might be secured. It would be an advance towards the condition laid down by the British Medical Association as desirable in all forms of contract practice. I fear that if a mere demand for increased salary without altered conditions is presented to the commission but little notice will be taken of it. Government salaries of lawyers are looked after in the House of Commons by the large professional element having seats there. Our handful of medical Members of Parliament are quite unable to help us. By combination we must help ourselves.

I am, Sirs, yours faithfully,
March 2nd, 1906. BETTER PAY.

To the Editors of THE LANCET.

SIRS,—I have read the interesting letter of "M.O." in your issue of Feb. 3rd on this subject and your admirable annotation on the same subject in THE LANCET of Feb. 10th. In my own district, which is much better off than most I know in having a smaller number of people who require attendance from the parish medical officer, the rate of salary works out at much less than the village policeman receives, and the time and attention one has to give to such cases as occur are quite as much as private patients receive provided one tries to do the work conscientiously, as I believe most parish medical officers do.

The present seems a good time to bring forward the question of adequate remuneration to Poor-law medical officers on account of the large number of Labour candidates who have been returned to Parliament and who must necessarily be interested in the medical relief of the poorer classes.

I am, Sirs, yours faithfully,
March 3rd, 1906. ANOTHER M.O.

THE OPERATION OF APPENDICOSTOMY.

To the Editors of THE LANCET.

SIRS,—In continuation of my note on this subject, published in THE LANCET of March 3rd, p. 596, I should like to add that a third case was brought to my mind after I had despatched my communication to you. This case showed me how valuable the appendix may be when used as a drain in cases of obstruction in the colon. It was one of cancer and I performed, what I now consider to be, the unjustifiable operation of primary excision. The end-to-end anastomosis gave way in spite of very perfect drainage through the appendix which was widely dilated and hypertrophied (from previous continuous back pressure). A drawback in this case was the difficulty of getting the appendix to close.

I am, Sirs, yours faithfully,
H. M. W. GRAY,
Surgeon to Aberdeen Royal Infirmary.
Aberdeen, March 3rd, 1906.

BRADFORD EYE AND EAR HOSPITAL.—The annual report of the Bradford Eye and Ear Hospital for the year ending Dec. 31st, 1905, states that 6786 patients have received treatment during that period, as compared with 6543 in the previous year; 1034 in-patients were admitted; 1030 major operations were performed; and 22,624 attendances were made by out-patients. Of the 6786 patients above mentioned 5517 were ophthalmic cases and 1269 were aural cases. The hospital committee has issued a printed instruction to midwives on the protection of the eyes of newly born children; it is here recommended that immediately after the birth, and before anything else is done, the eyelids and all parts surrounding the eyes should be wiped with a soft dry white rag, that these parts should soon afterwards be washed with clean tepid water before any other part of the body is washed, and that medical advice should be obtained if the eyelids become red or swollen. The financial statement shows that the total receipts were £2675 and the total expenditure £2604. Mr. G. H. Oliver, Dr. J. H. Crawford, Dr. F. W. Eurich, and Dr. J. H. Mason were re-appointed as members of the staff on the expiration of their terms of office.

TEMPERANCE LEGISLATION IN FRANCE.

ABOLITION OF TAXATION ON WINE AND BEER AS A MEANS OF PREVENTING ALCOHOLISM.—A GIGANTIC EXPERIMENT WITH "HYGIENIC DRINKS."

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

PART I.—INTRODUCTION.

THE members of the London County Council who so recently and successfully endeavoured to promote *l'entente municipale* by their visit to Paris have, in their own country, striven with perhaps more zeal than wisdom to cope against the great evil of alcoholism. In Paris they might have benefited by one of the most remarkable object-lessons on this subject that can be found in any part of the world. Here, at least, an experiment has been made on a gigantic scale which should be very carefully watched by all interested in the temperance question. Indeed, the whole of France has been through a most interesting and instructive experience. Only a generation back the British tourist and traveller who crossed the Channel was generally surprised by the wonderful sobriety of the French people. He might be months abroad without seeing in the streets a single case of drunkenness, especially if travelling in the centre and south of France. Even in the streets of Paris it was rare to meet a drunkard; and as for a drunken woman, that was absolutely unknown. Of later years, however, the same could not be said. Though, even at its worst period, France has remained a very sober country when compared with England, still there was a moment when alcoholism and crime were so much on the increase that a special commission was appointed by the French Senate to inquire into the matter. The result of this and many other investigations established the fact that the increase of alcoholism in France and, indeed, in other countries, notably in Switzerland, coincided with the destruction of the vine by the phylloxera. As natural cheap wines rose in price and often were not to be procured at any price, so did alcoholism become more prevalent. By the term alcoholism is meant, especially abroad, not mere drunkenness but a diseased condition of the body.

The inquiries made on the continent went to show that though a man might be drunk occasionally he might be but little the worse physically or morally, whereas another man who was never drunk might suffer from cirrhosis of the liver and other morbid changes such as entailed both moral and physical degeneration. Further, it was noticed in practice that it was often the younger men who were the sufferers; in fact, these victims were men who had reached the adult age at about the time when the prevalence of the phylloxera rendered it a matter of great difficulty to obtain pure wine. These younger men more readily resorted to absinthe, vermouths, and various spirituous bitters, but their fathers could not so easily throw off the habits of a lifetime. Even when wine was more and more difficult to obtain they persisted in drinking wine and suffered less, though they sometimes drank to excess while their sons remained sober. From all this it became obvious that even occasional drunkenness produced by pure wine was less dangerous than sobriety on impure spirits, on the alcohols of commerce. It was also evident that as in consequence of its scarcity wine became more sophisticated and artificial, drunkenness, or rather the disease of alcoholism, became more and more prevalent even among the wine-drinkers. The alcohols of commerce, with which diluted real wines or wines made with dried currants are strengthened, were often inefficiently rectified and more or less poisonous. The observations made on individuals and on the community at large were confirmed by experiments on animals. It was demonstrated that the harm resulted from the nature rather than from the quantity of drink or of the alcohol consumed. Such alcohol as results from the natural process of the fermentation of a fruit juice or of wholesome barley and hops might intoxicate but was not likely to produce the disease known as alcoholism. Nor were the populations that enjoyed an ample and cheap supply of such drink at all given to drunkenness. In the wine-growing countries, practically speaking, there is no drunkenness, and still less are there any cases of alcoholism. Hence the term "hygienic drinks" arose as applied to those beverages which only contain alcohol in this comparatively innocent form.

In the course of time this term became incorporated, not only in the language of social and sanitary reformers, but it now stands forth in statute books and is recognised as a legal definition. Among sanitary reformers, notably at the International Congress of Hygiene held in Geneva in 1882, it was argued that the ethylic alcohol, such as is produced by the fermentation of grape juice, did not cause the disorder of chronic alcoholism unless taken in great excess. But alcohols obtained by the fermentation of beetroot, potatoes, and grain did give rise to these lesions even when consumed in very moderate quantities. In 1888, when the Congress met at Vienna, a very elaborate discussion was held and a lengthy motion was adopted urging that every effort should be made to promote the sale of cheap and healthy drinks. What was then said and meant was confirmed and re-affirmed by the International Congress of Hygiene when it again met, this time at Budapest, in 1894. On that occasion the entire Congress, at which 28 nations were represented, adopted without a single dissenting voice the following motion:—

> All administrative public authorities should be petitioned to combat alcoholic excesses by all the means which are at their disposal, according to the special local conditions. The means in question are as follows: associations of temperance and abstinence, limitation of the sale of alcohols, surveillance of distilleries and the State monopoly of alcohol, augmentation of the tax on alcohol or brandies, reduction of the tax on beer and wine, the creation of asylums for the alcoholic, and the placing of habitual drunkards under restraint.

The most original of the above proposals was the demand that the taxation on beer and wine should be reduced. The State monopoly of alcohol exists in Russia and Switzerland. The other remedies advocated had already been carried into practice in most countries where drunkenness abounds, but as yet no endeavour had been made to reduce the cost of wine and beer as a means of promoting temperance. Indeed, this is a proposal which, though it was widely approved on the Continent some years ago, where practical knowledge exists of its likely effects, will even now seem to be quite a new suggestion to many English temperance reformers. But what the members of the London County Council who are so interested in the temperance question might have learnt during their recent visit to Paris is that this is no longer a mere suggestion. The proposal has been carried into effect and this on a gigantic scale and in the most favourable circumstances. It is obvious that to reduce taxation on wine would be of little service to the cause of temperance if wine, nevertheless, remained an expensive luxury. Nor would the end in view be attained if wine is only cheap because it is sophisticated, made with deleterious substances, and strengthened with poisonous alcohols of commerce. The fortunate circumstance of the present great national experiment is the fact that France has completely recovered from the phylloxera. On American roots, which it was found resisted the ravages of the phylloxera, the old French vines were grafted. In time they have grown and developed. Once more the vine-clad hills and fertile plains of France yield such an abundance of wine that we may here find a happy solution of the temperance question, not only so far as the French people are concerned, but in regard to the peoples of other nations as well. To-day simple, pure, natural wine is so abundant that it costs much less than mineral water and not more than the glass of the bottle in which it may be placed. If the price is not artificially raised by taxation pure wine is now the cheapest of all drinks. Therefore, if cheap, pure wine can prevent alcoholism now is the time to prove this assertion and the most satisfactory fact of all is that this opportunity has not been lost. A great nation has deliberately set to work to demonstrate by practical experimentation on the entire population that cheap, pure wine prevents alcoholism and nowhere has this been done in a more absolute and thorough manner than in the capital of the country, in Paris itself.

It would be a foolish exaggeration, however, to imagine that the French Government, the nation's Parliament, and the municipalities have stepped into the political arena as knight-errants ready to do battle with the monster alcoholism, and this without any other motives or considerations than those inspired by philanthropy or the desire to make scientific researches. Even at the risk of blurring so beautiful a picture strict regard for the truth renders it necessary to record that the wine growers of France are suffering from the over-abundance of the supply. The *mévente des vins* was a grievance which the numerous electors who possessed vineyards did not fail to press upon the

legislator. The activity of the wine growers was at least equal to that of the temperance reformers. The fortunate circumstance is that in this instance the interests of the cultivator, the trade, and the temperance reformers all coincided. The last clamoured for cheap wine so as to prevent drunkenness; the wine grower and merchant replied that the cheap wine was there in over-abundance but the *octroi*, or the town dues system of local taxation, so increased the cost of wine, at least in towns and especially in Paris, that it had to be sold at a comparatively high price. Consequently the poorer classes still drank impure spirits, which did not cost more than pure wine, and became the victims of alcoholism. Obviously the thing to do was to abolish the *octroi* but this would be little short of a revolution in local finance. The duty charged on wine entering a town represents from one-fifth to one-third of the entire *octroi* receipts, which are the principal municipal receipts. If in Great Britain Parliament proposed to abolish a fifth or a quarter of the existing local rates and taxes the difficulty of replacing such sources of revenue would strangely perplex the local authorities. Yet, incredible as it may seem, this is precisely what has been done in Paris.

The Government and Parliament certainly did not contemplate or attempt to enact so complete and radical a measure. It is precisely because the Paris municipality, both by the opinions of its councillors and its acts and resolutions, indicates what the Parliament and legislature of the future will be like that the proceedings of the Paris Municipal Council are watched with such keen interest by thoughtful politicians all over the world. Indeed, before the legislature of the country could be persuaded to do anything at all many years were lost in what seemed at the time to be but futile discussions. Moreover, the question of abolishing local taxation on wine was complicated with the desire expressed in some quarters to do away altogether with the *octroi* or town dues as the principal means of raising revenue for local government purposes. So far back as Jan. 20th, 1791, the Constituent Assembly had proclaimed the abolition of *octrois* and this decree was carried out amid much rejoicing on the ensuing May 1st. Direct taxation replaced this form of indirect taxation but in the year VII. the *octroi* was hypocritically re-established at Paris under the pretext of obtaining means to defray the cost of poor relief. Under Napoleon Bonaparte, and by the Law of the 4th Frimaire year IX., the *octroi* was not only re-established for all towns of more than 4000 inhabitants but orders were given that 20 per cent. of the proceeds were to be paid over to the national exchequer. The *octroi*, however, was never popular and one of the principal cries during the revolution of 1848 was "Long live reform and down with the *octroi*." All that was then done, however, was to reduce the *octroi* duty on meat and wine. The importance from the public health point of view of this reform needs no explanation. The people's food-supply must be cheap if it is desirable to mitigate the evil effects of low wages and poverty, and the *octroi* duty is principally levied on the food sent into towns. It is, indeed, curious that in spite of numerous popular uprisings and revolutions the *octroi* duty still subsists in France and Italy, though it has disappeared in most other countries, notably in England, Switzerland, Sweden, and Denmark. In Belgium it was abolished in 1860, in Holland in 1865, in Spain in 1869, and in Germany in 1875. So deeply are the people interested in the abolition of the *octroi* that the desire to effect this reform constituted a dramatic episode of the last struggle of the Second Republic. After the *coup d'état* of Dec. 2nd, 1851, the 60 members of Parliament who had escaped arrest met in the house of Michel de Bourges on Dec. 3rd, and on the proposition of Victor Hugo issued the following decree:—

> The Representatives who remain free decree: The *octrois* are abolished throughout the territory of the Republic.
> Enacted at the permanent sitting of the 3rd December, 1851.

Half a century had to elapse, an empire rose and fell, a third Republic came into existence, the markets had to be overstocked with wine, and sanitary reformers had to discover that with cheap wine there was less drunkenness before a portion—only a portion—of the above decree could be practically applied.

In the early "eighties" the matter came frequently before the French Parliament and in 1887 M. Fallières, now President of the Republic but at that time Minister of Agriculture, ordered a special inquiry to be made. In 1889, so as to reduce the cost of food, a proposal was introduced by M. Yves Guyot to give the communes the right to replace town dues by direct taxation but the project fell through. In 1893, however, M. Guillaumon and M. Guillemet brought forward a similar Bill and, as an electoral manœuvre, it was carried in the Lower House. The fact that the question of abolishing the *octroi* is as a rule raised just before a general election shows how popular is the proposal. It stands to reason that the mass of the people are interested in obtaining cheap food, and in this they are approved by all sanitary reformers. When, however, the Bill came before the Senate it only appointed a commission under the presidency of M. Bardoux. The report of this commission slept in the pigeon-holes for four years, and if the Chambers elected in 1893 had not voted in November, 1895, a special law in favour of abolishing taxes on "hygienic drinks" it might have been there still. Briefly, the position was that the Senate approved, as a temperance measure, the abolition of *octroi* duties on "hygienic drinks," that is on wine, beer, cider, perry, and mead; but the Senate was opposed to the total abolition of the *octrois*. The Lower House, on the contrary, favoured the total suppression of the *octrois* and accepted the reduction of the *octroi* duties on "hygienic drinks" as a step in that direction. It was in this spirit that the law of Dec. 29th, 1897, was adopted. This law is of such importance that it may be well to give the precise text of the principal clauses. They are as follows:—

> The Senate and the Chamber of Deputies have adopted, the President of the Republic promulgates the following Law:—
> *Article one.*—All communes shall be authorised to suppress their *octroi* duties on hygienic drinks (wines, ciders, perries, meads, beers, and mineral waters) from the 31st of December of the year that shall follow that during which the present law shall be promulgated.
> In default of the total suppression the communes shall be compelled to lower the existing tariffs within the limits specified in Article 2.
> *Article two.*—In communes which shall continue to tax hygienic drinks such duties must not exceed the following tariff.
> For wine in barrels or bottles per hectolitre.

	Fr.	c.
In agglomerations:		
Of less than 6000 inhabitants	0	55
,, 6,001 to 10,000 inhabitants	0	85
,, 10,001 ,, 15,000 ,, ...	1	15
,, 15,001 ,, 20,000 ,, ...	1	40
,, 20,001 ,, 30,000 ,, ...	1	70
,, 30,001 ,, 50,000 ,, ...	2	0
From 50,001 inhabitants upwards	2	25

> but for Paris 4 francs.

The *octroi* duty on wine in Paris was 10 fr. 62 c. per hectolitre and it yielded an income of more than £2,050,000 per annum. M. de Selves, Prefect of the Seine, reported that by reducing this tax to 4 fr. the loss of income would amount to £1,280,000 or £1,400,000, including the reduction on beer, cider, &c. If, on the other hand, the municipality of Paris availed itself of the faculty granted by the law to abolish entirely all taxes on "hygienic drinks," the loss to the local revenue would amount to £2,296,000, or about a third of the annual income derived from the *octroi*. It is this latter course which the municipality elected to follow, and the consequences of this stupendous measure affect so many conditions bearing upon the public health that they must be examined in detail. In 1897 the Paris *octroi* produced in round figures £6,200,000; but with the proposed reductions it would only yield about £4,400,000 in spite of the increase of population. This gives some idea of the sacrifice which has been made so as to remove the *octroi* dues on "hygienic drinks."

(To be continued.)

IMMIGRATION INTO THE UNITED STATES:

THE MEDICAL INSPECTION OF IMMIGRANTS AT NEW YORK.

(FROM A NEW YORK CORRESPONDENT.)

THE article on the alien question, with special reference to medical inspection, which recently appeared in THE LANCET has interest for all who reside in New York, especially for those who have a knowledge of the methods of medical inspection of aliens at the port of New York, the largest immigration port of the world. By far the greater number of those who desire to make the United States their home proceed to New York. An average of more than 2000 daily arrive there from Europe and up

to well into the "eighties" there were practically no restrictions in regard to the entrance of foreigners into the United States. But it was found then that immigration had become so large that the cities were being, if not flooded, at least embarrassed by the tide of incomers. It was, therefore, as an act of self-defence that laws regulating immigration were introduced. The character of immigration was fast changing, as was shown by the disposition of the strangers to throng into the towns. In place of the respectable, healthy, fairly-well educated and skilled British and German workmen and agriculturists there came over an ever-increasing stream of Northern Italians and people from the poverty-stricken districts of Eastern Europe, unskilled, illiterate, and unsanitary in their habits. For the most part these people were only fit to live in towns, for they had no experiences save those of town life to draw upon, and were quite unable to take advantage of the vast tracts of unoccupied land of the United States. It must also be remembered that during the past 20 years, and more conspicuously during the past decade, the immigrants to the United States have been mainly Jews. The Irish have continued to come in and so has a sprinkling of Scandinavians. Only a few English or Scotch now emigrate to the United States. In New York city alone there were in 1904 more than 380,000 Italians, an increase of nearly 130,000 since the year 1900.

The first Act put into force in the United States which really dealt seriously with the problem of immigration was passed in 1891. The clauses of this Act which referred to medical inspection provided that such inspection should be made by officers of the Public Health and Marine Hospital Service and also prohibited steamship companies from encouraging emigration by alluring advertisements. The Act also provided for the deportation within one year after landing of any alien landed in the United States in violation of the law. In 1893 further legislation provided that the steamship companies should furnish lists or manifests, made at the time and place of embarkation, which should contain all the necessary information concerning the immigrants. The same Act contained a provision by which the steamship companies that permitted diseased persons to take passage for America when their diseased condition must have been apparent were fined 100 dollars for each alien brought in suffering from a loathsome or dangerous contagious disease which might have been detected by means of a competent medical examination at the time of embarkation. The regulations are not only strict but are rigidly enforced. The actual methods of medical inspection at New York in order to deal efficiently with so vast a number of incomers must be ably directed and well carried out, and the Public Health and Marine Hospital Service, which is responsible for all details, leaves nothing to chance. Inspection of immigrants to America virtually begins in the country which the immigrants are quitting. Steamship authorities at the port of embarkation subject the would-be immigrant to a fairly strict medical scrutiny. The first-class lines, the German and English lines in particular, examine immigrants carefully and with due regard to the laws of the United States. The manifest indicates that an immigrant has not been at any time in prison, or in an almshouse, or in an institution or in a hospital for the care and treatment of the insane, what the alien's condition of health is, whether deformed or crippled, and if so, for how long and from what cause. The master or first officer and the ship's surgeon are required to make affidavit before an immigration officer at the port of arrival that the manifests are to the best of their knowledge true and that none of the aliens belong to excluded classes. The State quarantine authorities board the ocean liners on entering New York harbour when the immigrants are inspected for quarantinable diseases. The ship is then boarded by officers of the Public Health and Marine Hospital Service. The cabin passengers are first examined, special attention being paid to the second cabin, it having been ascertained that this part of the vessel is used more than occasionally in order to evade close inspection. After the cabin passengers have been examined the ship's surgeon reports any cases of sickness in the ship's hospital. Such cases are then examined by the medical inspectors who arrange for their transfer, if thought advisable, from the ship to the immigrant hospital. Immigrants are then conveyed from the ship to the immigrant station on Ellis Island where the main and most arduous portion of the medical inspection is carried out. The medical examination is conducted according to a system which is the result of many years of development. The medical men work in pairs and divide between them the inspection of a group of immigrants. The immigrants coming in single file are rapidly examined for certain obvious defects by the first medical man. The second medical man, placed about 30 feet from the first, disregards those points of the examination which by agreement have been intrusted to his colleague and has a little more time in which to make his scrutiny as the immigrants reach him somewhat separated owing to their detention by the first medical man. Also, the file of immigrants makes a right angle turn just as it reaches the second medical man which enables this observer to examine the sides and backs of the immigrants in the shortest time possible.[1] After the last alien in line has passed the second medical man the suspected ones who have been turned aside from the file are thoroughly examined and those suffering from a loathsome or dangerous contagious disease are certified and sent to a board of special inquiry. Those not deemed fit to travel are sent to the hospitals and those afflicted with some disability likely to make them a public charge are certified accordingly and sent to the board of special inquiry. Minor defects, such as anæmia, loss of an eye, loss of a finger, poor physique, and low stature, are recorded on the alien's card and he is allowed to go to the registry clerk and immigration inspector in charge of the manifest, who takes the defect into consideration as contributory evidence and may or may not send him to the board. A board of special inquiry according to the law of 1903 consists of three members, selected from the immigration officials in the service, as the Commissioner-General of Immigration, with the approval of the Secretary of Commerce and Labour, shall designate. The decision of any two members of a board is final but as in London an alien can appeal. To this "board of special inquiry" are sent the aliens certified by the medical officers as suffering from loathsome or dangerous contagious diseases, idiocy, epilepsy, and insanity. In cases so certified the medical certificate is equivalent to exclusion, the board simply applying the legal process. In cases in which the medical certificate denotes disability the board has full discretionary powers and in the majority of instances these are passed. Putting aside quarantinable diseases, trachoma is the most important malady with which immigrants to New York are afflicted on account of its frequency. Of the total number of cases of loathsome or contagious diseases found among immigrants nearly 90 per cent. were due to trachoma. The significance, therefore, of the freedom of immigrants at the Port of London, as noted by the representative of THE LANCET in his interesting article, is significant.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The University.

SEVERAL interesting and encouraging circumstances were noted at the recent annual meeting of the court of governors of the University. The number of students continues to increase, the number of graduate and undergraduate students having risen from 286 in 1904–05 to 366 in 1905–06, whilst, in addition, about 500 other students are taking out courses in the University. This increase has caused some crowding in the class rooms and laboratories and has made still more evident the necessity for further extensions. The engineering department is already installed at Bournebrook and the new block for physics and chemistry will be erected there as rapidly as possible, but cannot be finished for 18 months or two years. The new pathological department which faces Great Charles-street is practically complete and will be open in the next session. It includes new laboratories, class rooms, and research rooms and it will give unequalled facilities for undergraduate and post-graduate work. During the year the University has received by bequests and gifts over £100,000 and the whole of the sum has been bequeathed or given for definite purposes. £50,000 from an anonymous donor are to be devoted to the buildings at Bournebrook; £20,000 from the Feeney bequest for the maintenance of a professor in some

[1] Dr. Allan McLaughlin of the Public Health and Marine Hospital Service has contributed a series of papers on the alien question in America to the *Popular Science Monthly*, which those interested in the question and desirous of fuller information should read.

scientific subject connected with the trades of Birmingham; £10,000 from Mr. C. Copeley Harding, on behalf of his mother, sisters, and himself, and in memory of the late Mr. Charles Harding, for the purpose of building a library at Bournebrook; £100 from Miss Annette Harding for the purchase of books for the Faculty of Arts; and £100 from Professor and Mrs. Fiedler, also devoted to the Arts Faculty. An open classical scholarship of £40 per annum to be called the George Henry Marshall scholarship and a prize of £10 per annum to be called the George Henry Marshall prize, for encouragement of research in ophthalmology, have been founded by the sons of the late Dr. G. H. Marshall in his memory. £500 have been received from Mr. Francis W. W. Mitchell for the fund for the University Library of Music, £100 from Mr. George Hookham, and £25 from the late Mr John Feeney for the same purpose. The Vice-Chancellor (Alderman C. G. Beale), who presided at the meeting, spoke hopefully of the future, pointing out that although much more money would be needed in the future to enable the University to hold and to advance the high position it had gained, experience of the past pointed to the means being forthcoming as necessity for them arose. The Chancellor of the University (Mr. Chamberlain) could not leave London to be present at the meeting and the Principal (Sir Oliver Lodge) has not yet returned from Italy but it is hoped that he will be back at the commencement of the summer session.—Up to the present the athletic club of the University has not included golf as one of its subsections but at an enthusiastic meeting held the other day it was decided that the time had come when a golf club might reasonably be formed. The Principal was elected President and Mr. H. G. Barling (the Dean of the medical school) and Dr. R. F. C. Leith were appointed Vice-Presidents.

Convalescent Homes.

Forty years ago a meeting was held in the town hall of Birmingham at which it was determined to establish a sanatorium in the vicinity and Sparkhill became the first site. But this first home of the institution was only three miles from the centre of the town and was soon encroached upon by the rapid extension of the town boundaries. It then became necessary to secure a more distant site and a spot was chosen on the brow of a hill at Blackwell, within easy distance of the station. The sanatorium built there faces south and the inmates enjoy beautiful views across the undulating country extending to Malvern, Woodbury, and the Clee Hills. The building was opened in 1873 but it has been found advisable to enlarge it and it will now accommodate 150 patients. The situation is beautiful and healthy but if its invaluable work is to be continued and extended more funds must be obtained, and, unfortunately, at the time these funds are especially needed the revised method of distributing the Hospital Saturday collection has diminished the income by £300.—The need for increased support was also referred to at the annual meeting of the Cotswold Convalescent Home which receives about 236 patients each year. The honorary secretary (Mr. J. C. Tinson) pointed out that the subscriptions were fairly maintained but that they did not increase in proportion with the increase of work and higher maintenance charges.

Local Health Reports.

The report of the health committee to the city council is extremely satisfactory, for whilst the birth-rate in 1905 is the lowest on record (29·2 per 1000) so also is the death-rate (16·1 per 1000). Moreover, both birth-rate and death-rate compare very favourably with the rates of many other large towns. The satisfactory condition of the death-rate appears to be due to the absence of any serious epidemic of summer diarrhœa and to the relatively slight prevalence of the more common epidemic diseases. It is interesting to note that the mortality-rate both for scarlet fever (3·1 per cent.) and diphtheria (14 per cent.) was reduced as compared with the preceding year, although the absolute number of cases of both diseases was greater than in the preceding year, and it is suggested that the reduced diphtheria mortality is due to a larger number of patients having been treated in hospital. The authorities and the city are certainly to be congratulated upon the slight prevalence of typhoid fever, only 209 cases having been reported as compared with an average of 547 in the previous ten years and it can only be regretted that the mortality remains the same (18 per cent.). Efforts were made to deal more vigorously and successfully with tuberculosis, which caused 999 deaths. Medical men were asked to notify voluntarily cases of pulmonary tuberculosis in an infectious condition and 666 cases were notified. All were visited and instructions were given to prevent the spreading of the disease both at home and out of doors. In all cases after death disinfection of the home of the patient is carried out and it is hoped that useful results may be secured. As a precautionary measure and in view of certain evidence which has come before him the medical officer of health has issued a circular requesting all medical practitioners to notify to him all cases of cerebro-spinal meningitis. It is most important that such cases should be promptly notified and the usual notification fee will be paid. Sutton Coldfield still retains its record as a most healthy suburb. Its birth-rate for 1905 was below the average (19·9). The total number of births was 368 and more males than females were born, though the excess (28) was not so great as in the preceding year. The death-rate was the lowest on record for the town, 9·19, and 40 of the total deaths occurred in the cases of people over 65 years old. The infant mortality-rate was only 73 per 1000, whilst in 1904 it was 135. In Bromsgrove also not only has the year been healthy but the birth-rate has been low, as in Sutton Coldfield and Birmingham (26·98). The death-rate was 10·5, whilst the average for the previous ten years is 16·3. The infant mortality rate was 69 per 1000. The zymotic death-rate was 0·35 per 1000 and only six cases of infectious disease were notified during the year. The monthly report of the Oldbury medical officer of health (Mr. G. B. Buttery) shows an increased death-rate (18·1), as contrasted with 17·2 for the previous month. In the Walsall rural district the death-rate was very low (8·8) and in the parish of Pelsall not a single death occurred.

Mortuary Accommodation.

Birmingham is at last to have a central mortuary. Such accommodation has been needed for a long time and it is surprising that the watch committee has not provided for the necessity sooner. The district mortuary provisions are very primitive and very frequently unsatisfactory and inconvenient. The building now to be erected will cost £2723 and it will provide accommodation for 13 bodies and facilities for the proper performance of post-mortem examinations. It is intended that in cases of sudden death occurring in public places the bodies shall, if possible, be carried to the central mortuary. This will be a great convenience to the coroner and the jurymen and will save the expense of conveying the jurymen to all parts of the city.

Water-supply.

It is some compensation for the miserable weather conditions of the past month to find that the water-supply of the city has been largely increased. A year ago the total amount of water in the storage reservoirs was 4,631,000,000 gallons and now it is 10,097,000,000 gallons—that is, it is within 1,840,000,000 gallons of the total storage capacity. Dr. J. Robertson (the medical officer of health) reports that it is pure and soft and distinctly less coloured than in the previous months. Under these conditions we can look forward to, and hope for, a fine and long summer without any fear of the water-supply proving insufficient.

March 6th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool School of Tropical Medicine: Annual Report.

THE seventh annual report of the Liverpool School of Tropical Medicine was issued last month. The committee stated that it is again able to record that in the past year the school had continued to receive generous support from the public and had been able to carry on its work without in any way relaxing its efforts. At the same time it must be borne in mind that the expenses of the school were increasing in a larger proportion than its receipts owing to the great development of research work already begun as well as the opening up of new fields of research. It was with the deepest regret that the committee learned of the sudden death of Dr. J. E. Dutton, Walter Myers Fellow, at Kosengo, on the Congo, while actively engaged in the investigation of trypanosomiasis and tick fever. The Johnston laboratories of the University of Liverpool, where accommodation for the research work and teaching of the school was provided, were presented to the University by

Mr. William Johnston. The buildings are situated on the east side of the Thompson-Yates Laboratories which they immediately adjoin. The basement is devoted to comparative pathology and is under the control of Dr. H. E. Annett. The ground floor is devoted to tropical medicine and is presided over by Professor R. Ross, F.R.S. The first floor is set apart for the study of experimental medicine, including experimental investigation in medicine, pathology, physiology, bacteriology, and allied subjects, under the superintendence of the professor of physiology and the professor of pathology; one set of rooms is devoted exclusively to cancer research, under the direction of Mr. J. E. S. Moore. The second floor is assigned to bio-chemistry and is presided over by Professor Benjamin Moore. The laboratories of tropical medicine are contained in a large room about 95 feet long and 35 feet broad. The clinical work of the school is carried on at the tropical ward of the Royal Southern Hospital which, from its position near the docks, had since its foundation been largely frequented by cases of malaria and other tropical diseases. One of the physicians of the hospital was always in charge of the tropical ward and devoted his attention to the treatment of the cases and the clinical teaching of the students. There are special clinical laboratories attached to the tropical ward and the students also have access to the general pathological laboratory of the hospital. The Government voted a grant to the school of £500 per annum for five years from Jan. 1st, 1905, which enabled the staff of the school to be increased. The University of Liverpool had also made a grant of £200 per annum from Oct. 1st last. Subscriptions had come in very liberally from the general public, but the extensive scope of the trypanosomiasis research work undertaken by the school in connexion with the Congo sleeping sickness expedition had entailed heavy expenditure which had seriously crippled the funds at the disposal of the committee, with the result that the school entered on the present year with a deficit of nearly £190. During the past year 31 students had attended the school, including officers of the Colonial Medical Service and the Indian Medical Service.

Another Death from Anthrax in Liverpool.

The Liverpool coroner held an inquest on Feb. 28th on the body of a dock labourer, aged 49 years, who died in peculiar circumstances. The deceased complained of a swelling on the right side of the neck on Feb. 22nd and although it increased in size he went to work on the following morning. He became seriously ill on Feb. 24th and died on Feb. 26th. The necropsy revealed the fact that death was due to anthrax. The evidence showed that the deceased was usually engaged at steamers arriving from Mediterranean ports; these vessels occasionally carried hides but had not done so this year. The medical evidence was to the effect that the deceased probably contracted anthrax through touching leather on a passing wagon with his hand and then rubbing or scratching his neck. A verdict of "Death from anthrax" was recorded and the jury added a rider to the effect that vessels should be thoroughly disinfected after carrying hides and that workmen engaged in handling hide cargoes should wear gloves. This is the second death occurring in Liverpool within a few months due to anthrax.

Cattle Cake and the Spread of Anthrax.

Professor Penberthy, of the Royal Veterinary College, London, lectured on anthrax to a meeting of farmers held on Feb. 19th at Knutsford. He referred to the increase in the number of cases of anthrax in Cheshire and said that the cause for some of the alarm was apparent rather than real, as the returns showed that in most cases only one animal was affected in any particular outbreak. They were bound to admit that anthrax was introduced into this country from abroad in artificial and natural foods. But it was almost impossible for farming and breeding operations to be carried on here without the use of foreign cake, &c. The only measure that seemed to him at all practicable to prevent the spread of the disease was that a guarantee should be obtained from the manufacturers that the cake during the process of manufacture had been subjected to a temperature sufficiently high to kill anthrax germs.

New Cottage Hospital at Hoylake.

On Feb. 17th the Hoylake and West Kirby Cottage Hospital, which has been provided in Church-road, Hoylake, as a memorial to the late Queen Victoria, was opened by Mrs. W. H. Lever in the presence of a large gathering of the subscribers. The committee which has had charge of the movement to furnish the district with the cottage hospital—the necessity for which had been keenly felt for a long time—has acquired and adapted for the purpose a large dwelling-house which has been amply furnished. Six beds have been installed, three for males and three for females. Accommodation is also provided on the premises for the matron and district nurse, and altogether the institution has been equipped so as to meet the requirements of the neighbourhood.

Nursing in Cheshire.

Lady Stanley of Alderley and members of other county families in Cheshire are taking up the question of a county nursing association. A private meeting has been held at Alderley Park, when a proposition was carried in favour of the formation of a society to procure that object. Colonel Dixon, the chairman of the Cheshire county council, and Mr. F. Vacher, the medical officer of health of the county, are associated with the movement. The Cheshire county council will be asked for scholarships and grants in aid of the scheme.

March 6th.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

The Trained Nurses' Institution and its District Nursing Branch.

THE twenty-seventh annual report of the Leeds District Nursing Association has just been issued and shows, as it has done year by year, a steady growth in the amount of work accomplished. The special work done consists in the nursing of the poor in their own homes. Needless to say, the association will not undertake the nursing of any patients who are not under the care of a medical man, either a private practitioner or one of the resident medical officers of the dispensary. During last year 80,021 visits have been paid by the nurses to 3601 patients; this indicates an increase in the number of patients visited of 239. In respect of an annual subscription from the dispensary of £100 the association provides that institution with the services of a nurse who devotes all her time to the work. In this she attends on the honorary and resident staff during the time they are seeing out-patients and assists in the dressing of patients and during operations. At one of the branch homes patients who are under the care of medical men have minor dressings attended to and services of this kind have been rendered on 1594 occasions. The report sets out that the sum of £47 19*s.* 2*d.* has been spent on tram and railway fares and that it would be a material advantage if the corporation would grant the free use of the trams to the nurses who are engaged in this truly public service. The staff now consists of two superintendents, 20 district nurses, and one nurse attached to the dispensary. During the past year a special effort has been made to raise a sum of £10,000 and about one-half of that amount has now been obtained. This fund is required for the enlargement of three of the homes and for a sum for current expenses to replace the Jubilee money which is now nearly exhausted. It is interesting to know how this institution came into being. Some 30 years ago, at a time when there were very few trained nurses in Leeds, and at a time, indeed, when neither in Leeds nor elsewhere was there anything like the demand for them there now is, a meeting was held of those interested in the subject and it was decided to start the "Trained Nurses' Institution." By voluntary contributions a sum of about £5600 was collected and from its initiation the institution has flourished. The objects aimed at were two—firstly, to have at the service of the public an institution from which properly trained nurses could be obtained by those who were in a position to pay for them; and, secondly, to secure funds in order that an allied institution might be developed so that skilled nursing might be brought gratuitously to the homes of the poor. Both these objects have been achieved. The report of the parent institution for last year, which is the thirtieth, states that the desire of the committee has always been to keep the fees charged as low as possible so as to meet the needs of all and yet to make the institution self-supporting. The staff of the Trained Nurses' Institution consists of Miss Dawson, who has acted as superintendent from its commencement and has during that time had Miss Crackenthorpe as assistant, and 85 nurses. All the nurses are

trained at general hospitals which lay themselves out for the training of nurses for a period of two years, and at present 16 nurses are undergoing this training. During 1905 717 cases have been undertaken and 152 have had to be refused. In almost all cases the nurses, who are engaged by the week, live at the houses of the patients. The central home has accommodation for 16 nurses and both this and the quarantine and convalescent home at Headingley, which accommodates nine, are freehold and the property of the institution. The dividends from invested funds, which are being increased year by year, amounted in 1905 to £311. A sinking fund has been formed so that those nurses who receive pensions from the Royal National Pension Fund for Nurses have their pensions supplemented by an annual bonus of £10. The District Nursing Association, which, as already stated, was started as a branch of the parent institution about 27 years ago, fulfils the second object of the originators of the scheme. It is subsidised by the parent institution. Last year £200 were contributed in this way and during the current year it has arranged to contribute £300. This sum, of course, forms but a small proportion of the income of the charitable branch, as it may be termed, for the District Nursing Institution has an annual subscription list amounting in 1905 to £1213. Last year there were received from the Workpeople's Hospital Fund a grant of £225; from the Trained Nurses' Institution, as just stated, a subsidy of £200; and sundry other sums brought the income from donations up to £700. From invested funds £149 were obtained, from rents of property owned by the institution £117, and from services rendered to the Public Dispensary £110. The total income last year was therefore about £2300. The expenditure was £2405, which, considering the amount and quality of the work done, is certainly small. It is of interest to note how the various cases attended to have been brought to the notice of the institution. Of the 3601 cases attended to last year 288 were on the books at the end of 1904; of the new cases 2088 were attended to at the request of private medical men, 479 at that of the resident staff of the dispensary, in 396 cases the request came from neighbours, in 83 from clergymen and other visitors, 202 were former in-patients of the infirmary, nine old in-patients of the Hospital for Women and Children, and the remainder were visited at the request of the Poor-law medical men and the other officials of the guardians. Of the new cases visited 2044 were medical, 890 were surgical and included 247 cases of operation, and 379 were cases of diseases peculiar to women, including complications after confinement.

Appointment at the Hospital for Women and Children.

Consequent on the promotion of Professor C. J. Wright to the consulting staff, and as a result of the new arrangements which have recently been remarked on in this column, a new appointment of assistant surgeon has been made at this institution. To this position the special election committee has appointed Dr. Carlton Oldfield. Dr. Oldfield was a distinguished Leeds student and after taking his qualification acted as house surgeon to the infirmary.

March 5th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Aberystwyth Board of Guardians and their Medical Officer.

NEARLY six weeks ago the Aberystwyth guardians sent to the Local Government Board a series of resolutions in explanation of their refusal to increase the salary of Mr. G. R. E. Bonsall who was receiving £30 per annum to include medicines. No answer having come to hand, at a meeting of the guardians held on March 5th a motion was placed on the agenda to the effect that a month's notice should be given to Mr. Bonsall to terminate his services as district medical officer and public vaccinator. When this motion was reached the guardian in whose name it stood asked leave to withdraw it in order that it might be amended. The chairman would probably have ruled it out of order had it been proposed and for the edification of the members read out the following:—

Medical Officers Order, 1857, Art. I.: Every medical officer of the workhouse duly qualified at the time of his appointment according to the regulations of the Poor-law Board then in force shall hold his office until he shall die or resign, or be proved to be insane by evidence which the Poor-law Board shall deem sufficient, or become legally disqualified to hold office, or be removed by the Poor-law Board.

Mr. Joseph Parry, a country guardian, then gave notice that at the next meeting he would move that Mr. Bonsall be re-appointed to the post which he had resigned at a salary of £40 instead of £30. In the meantime the infirmary board has agreed that Mr. R. T. E. Edwards, the house surgeon, shall attend cases of emergency at the workhouse when asked to do so by the master.

Insanitary Conditions at Bridgend.

At a meeting of the sanitary committee of the Glamorganshire county council held on March 2nd, Dr. W. Williams (medical officer of health) reported that owing to the fact of enteric fever having repeatedly been prevalent in the Bridgend urban district the council had ordered a house-to-house investigation to be made by an experienced sanitary inspector. That official had inspected 241 houses and of this number no less than 224 had defective drains.

Appointment of an Analyst for Bristol.

There were 30 applicants for the post of city analyst for Bristol. The commencing salary is £450, rising by annual increments of £25 to £600. The joint committee of the watch and health committees on Feb. 27th selected Mr. Edward Russell, B.Sc., F.I.C., F.C.S., public analyst for Portsmouth, and he will therefore be recommended for the appointment at the next meeting of the city council on March 13th.

Dogfish as Food.

Members of the Cornish county council and of other Cornish local authorities attended a dinner at Truro on Feb. 28th with a view to popularise dogfish as an article of food. A meeting of the sea fisheries committee, held earlier on the same day, had approved of the change of name from dogfish to flake, and after the dinner the company were unanimously of opinion that flake was a most excellent, nourishing, and agreeable form of food. It was stated that the demand for the fish was increasing steadily.

Dental Questions.

A joint meeting of the Western branch and the South Wales and Monmouthshire branch of the British Dental Association was held at Newport on Feb. 24th under the presidency of Mr. T. Gill Williams (Newport). Mr. Quintin Miller (Hereford) read a paper entitled "A Controversial Subject," dealing with provident dental surgeries at which the working-class could be treated at reduced fees. Mr. W. Jones Greer (Newport) and Mr. H. J. Thomas (Swansea) contributed papers on Cysts of the Jaws and Conclusions arrived at after Examining the Teeth of School Children. The meeting was followed by a dinner.

Prosecution under the Dentists Act.

At the Plymouth police court on Feb. 26th Mr. H. Drew, who is neither a legally qualified medical practitioner nor registered under the Dentists Act of 1878, was fined £5 and costs for using the letters D.D.S. after his name, implying that he was a person specially qualified to practise dentistry.

Royal West of England Sanatorium, Weston-super-Mare.

The thirty-sixth annual meeting of the subscribers of this institution was held on Feb. 24th. The medical report stated that 2529 patients (1460 men and 1069 women) had been admitted during 1905, showing an increase of 176 compared with 1904. The financial statement showed that the income amounted to £4116 and the expenditure was £4043.

March 6th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Annual Report of the Royal Edinburgh Asylum for the Insane.

Dr. T. S. Clouston in his annual report of the Royal Edinburgh Asylum for the Insane usually succeeds in making at least one point so prominent that it attracts public attention. This year his leading point is general paralysis. He has had an unprecedentedly high number of admissions of this disease during the year. They amounted to 64 and of these a further unparalleled experience was that 38 of them were females. When he was a young physician it was very rare indeed to see this disease in women. Of the female cases all save one were of the rate-paid class. Of 312 rate-paid admissions 18·6 per cent. were general paralytics, while of the 116 private patients only 5 per cent. suffered from that disease. This was the first time the number of admissions

of female general paralytics exceeded that of the men. He considered this a bad sign of the moral status and mode of life of the class from which those patients came and it was a sidelight of a very depressing character on our social life. As showing the great difference in the local distribution of this particular disease he noted that in Ireland with a population of 4,500,000 only 52 such cases were sent to all the Irish asylums. Great cities, vice, dissipation, and undue excitement were the breeders of this disease. He then proceeded to refer to the investigations of Dr. W. Ford Robertson and of Dr. G. Douglas McRae into the etiology of general paralysis. The record of this work is to be found in the summaries of the Morison lectures which have recently appeared in THE LANCET.[1] Dr. Clouston considered that these investigators had proved that the immediate cause of the disease was a microbe which acted specially on brains that had previously been weakened by dissipation and poisoning. He had long hesitated as to the sufficiency of these facts to prove their theory but the new evidence which they had produced this year was too strong for him and he was now satisfied that they had discovered the true nature of the disease. The cheering part of the investigation was the hope it held out that a cure might be found in the future. He did not expect that the microbic theory would be at once accepted by the whole medical profession for no such radical change of view was ever received without much questioning. Dr. Clouston then dealt with a subject on which he annually lays emphasis—namely, the relation of alcohol to insanity. The number of admissions due wholly, or in part, to excess of alcohol was 110, or 25·7 per cent. This showed an increase on the average of the preceding five years. It was not satisfactory to find that this cause of mental disease in the women admitted had risen from an average of 16·2 in the previous five years to 22 per cent. It was satisfactory to note that while this was the case with the rate-paid class, with the private patients the alcoholic rate was 10 per cent. He held that it was incontestable that the alcoholic insanity rate was still far too high amongst all classes. There was room for many agencies in warning people with regard to the present and the far-reaching dangers of alcoholic excess. The young at the schools ought, he thought, to be taught more about it as a mere branch of knowledge. When the cases of admission were classed under the heads of mania and melancholia the melancholic phase was found greatly to predominate. This was the reverse of what their experience was 30 years ago and he thought it was to be attributed to the lessened nervous tone which resulted from the epidemics of influenza which had passed over the country. In concluding his report he adhered to his previously expressed opinion that the Royal Infirmary or the parish council should provide hospital accommodation for the early treatment of transient uncertified cases of mental disease. He thought that the day might come when insanity might be added to the notifiable diseases as one means of eliminating the unfit from marriage.

The Carnegie Trust.

The report of the executive committee of this trust for last year has been issued. There are many points in it which need not be mentioned here but there are others of considerable medical interest. The total payments for the year to the four Scottish universities were: St. Andrews, £8343; Glasgow, £16,495; Aberdeen, £13,631; and Edinburgh, £22,500. These payments include grants for buildings, endowments, apparatus, &c. Amongst the educational institutions outside the universities which have received grants are the School of Medicine of the Royal Colleges, Edinburgh; the Edinburgh Medical College for Women; and Anderson's College Medical School, Glasgow. It will be remembered that the Carnegie Trust took over the Research Laboratory of the Royal College of Physicians of Edinburgh so that the report has a section devoted to the report by the superintendent on the research work done in the laboratory during the year. There were 36 workers engaged on 49 investigations and 19 papers have been published from the laboratory during the year. The laboratory cost for the year £1217. Of this sum £750 were contributed by the Royal College of Physicians and £200 by the Royal College of Surgeons. A sum of £90 was earned by reporting, so that the sum spent by the trust was £265. The great part of the report is devoted to the question of the payment of students' class fees. This question need not be gone into in detail here but it may be stated roughly that the demands upon this section of the trust have become so large that the trust is already face to face with the necessity of having to alter the conditions under which it has so far paid class fees. There has been a much greater call on this portion of the trust by an increase during the year of 906 beneficiaries and the average cost of each beneficiary has been greater from two causes: first, because students have taken a larger number of classes and, secondly, because the class fees in some instances have been materially raised. The sums paid for fees are large: For the summer session of 1905 they amounted to £15,243 for 1834 students; and for the winter session, 1905–06, to £32,268 on behalf of 3184 students. The amounts paid in fees in the Faculty of Medicine are much larger in Edinburgh, Glasgow, and Aberdeen than in the other faculties, while in St. Andrews the sum amounts to about half the sum paid to the Faculty of Arts. The sums are as follows: St. Andrews, £1371; Glasgow, £7037; Aberdeen, £5517; and Edinburgh, £10,918. In view of the demands made upon this fund there is no wonder that the public and the press have reopened the question of the desirability of having the fund for the youth of the country. It is evidently clear that it is taken advantage of by persons for whom it was not intended. The section of the trust dealing with endowment and equipment has been, and will continue to be, invaluable to the universities and to the other institutions sharing the benefits with them. The trust is in communication with the universities as to the best measures to take with regard to class fees.

Pathological Department of the Edinburgh Royal Infirmary.

There are so far only four candidates for the three vacant posts in this department. They are Dr. W. E. Carnegie Dickson, assistant in the University of Edinburgh pathological department; Dr. W. T. Ritchie, pathologist to Leith Hospital; Mr. Henry Wade, conservator of the Museum of the Royal College of Surgeons of Edinburgh; and Dr. Ian Struthers Stewart, a former clinical pathologist at the Banchory Sanatorium. Dr. Dickson and Mr. Wade apply to be assistants for morbid anatomy and Dr. Ritchie and Dr. Stewart for clinical pathology. It is to be regretted that there are not more candidates for these posts from amongst the younger men who are looking forward to being physicians to the infirmary. It will not be to the benefit of either medicine or pathology if there should be a generation of hospital physicians none of whom has had the training which can only be got in the post-mortem room. At present there is a trend to divorce pathology from medicine but that tendency is temporary and is deplored by none more than by the pathologists themselves who realise the disadvantage of being excluded from the practical clinical side of medicine.

Science and the Public.

Last week under the auspices of the Glasgow centre of the Royal Scottish Geographical Society Major Ronald Ross of the University of Liverpool delivered a lecture on the subject of "Science and the Public." Major Ross said that his attention was first called to this subject in connexion with malaria which was the principal enemy of geographers. Science had shown how that widespread disease might be avoided and even in some localities extirpated, but the public would not act on what science taught them. He went on to describe with the aid of lantern slides what had been done to free mankind from malaria and yellow fever and contended that the sooner the public altered its apathetic attitude towards such scientific results the better would it be for the world at large.

A New Reception House for Partick.

A new reception house in connexion with Knightswood Fever Hospital has just been opened. The building, which is among the first of its kind in Scotland, is of one storey and is designed in such a manner that from a central administrative department there radiate four different houses which can be occupied by four different families. Each house has a living room, two bedrooms, and a bathroom, and has an independent entrance door and airing ground. One of the houses, instead of having two bedrooms, has one dormitory, and this house can be utilised if required for men only in the event of an epidemic breaking out in a model lodging-house. A special entrance is provided from the main road to the administrative department. This type of reception

[1] THE LANCET, Feb. 3rd (p. 334) and 10th (p. 396), 1906.

house is a great advance on the old type which exists in connexion with so many fever hospitals, where in times of pressure people under suspicion of suffering from different infectious disease have to be kept in the same reception house, with the result that in some cases people previously free from illness contract an infectious disease in the reception house.

March 6th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal University of Ireland.

FOR the vacant Senatorship of the Royal University of Ireland (owing to the resignation of his honour Judge Shaw, K.C.) there is to be an election in April and Dr. John Campbell, Belfast, President of the Royal University Graduates' Association, is a candidate. In his address just issued he says he is prepared to make the best of the Royal University until some more promising scheme of university education has been evolved. He is opposed to the establishment in Ireland alike of a sectarian college or university. He is in favour of extern examiners but will support any other method by which the confidence of students in the fairness of the examinations is likely to be maintained and he will endeavour to have the different colleges connected with the university fairly represented on the board of examiners. He is also of opinion that the university should have disciplinary powers enabling it to maintain order in meetings held within its walls and to punish students and graduates for conduct unbecoming the students and graduates of a university. If elected Dr. Campbell promises to do all he can to improve the position of the Royal University and of Irish education.

Queen's College, Belfast.

In the House of Commons on March 1st, in reply to a question asked by the late Chief Secretary for Ireland (Mr. Long), Mr. M'Kenna stated that a sum of £5400 was being taken in the Estimates for 1906–07 for buildings at Queen's College, Belfast, conditionally on an equal sum being appropriated to the same purpose from funds raised by public subscription. This grant will enable the chemical laboratory to be completed and, in addition, it will allow an enlargement of the physiological and pathological laboratories. It will also give two more lecture-rooms which are much needed.

Health of Belfast.

At the monthly meeting of the Belfast corporation, held on March 1st, it was reported that a sum of £55,429 had already been expended (up to Jan. 31st) on the new infectious diseases hospital and that it was estimated that to complete the building, including furnishing, a further sum of £19,590 would be required, making a total of £75,000. For the quarter ended Dec. 31st, 1905, there were 203 deaths of children under five years of age. Of these, 72 were over three months and under one year and 65 were over one year and under five years. Of the children under one year 50 per cent. were bottle-fed. The death-rate between Jan. 21st and Feb. 17th was 22·7 per 1000. There was a slight decrease in all the notifiable diseases except scarlet fever, diphtheria, and membranous croup. The number of cases of scarlet fever—though the disease is mild—still keeps large with a very small mortality. The deaths from whooping-cough have materially increased.

The Belfast Society for Nursing the Sick Poor.

At the annual meeting of this very deserving society, held in the City Hall, Belfast, on March 2nd, the report stated among other matters that 1136 cases had been nursed during the year 1905. The total income for 1905 was £1106 and the total expenditure £1184, leaving a balance on the wrong side of £78. Professor J. W. Byers, in supporting the adoption of the report, spoke of the great value to the general community in the aid afforded by this society in educating the poor in the subject of the prevention of disease. Apart altogether from teaching the laws by which the spread of infection could be controlled, their nurses could give those with whom they were brought in contact hints as to the proper feeding of infants and for the stamping out of consumption.

County Down Infirmary.

At a meeting of the committee of management held on March 3rd the annual report for 1905 was read. The total income was £1820 3*s.* 1*d.* and the expenditure was £1814 11*s.* 8*d.*, leaving a small balance of £5 11*s.* 5*d.* in hand. 501 patients were admitted during the year and these, with 40 remaining from the previous year, made a total of 541 treated in the 12 months ended Dec. 31st, 1905. There were 912 extern cases. Owing to the increase of tuberculous cases verandahs were suggested as being necessary with open shelters.

March 6th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Antidysenteric Serum.

AT a meeting of the Academy of Medicine held on Feb. 20th M. Vaillard and M. Dopter communicated a paper in which they laid before the Academy the results which they had obtained in cases of bacillary dysentery by the use of a serum. This serum had been prepared by them at the Pasteur Institute from a horse which had been injected both hypodermically and intravenously with a culture containing both living dysenteric bacilli and their toxins. The serum was first tested experimentally on the rabbit and was found to be protective for a period not exceeding ten days, while it also manifested curative properties. It was then tested in human beings on 96 cases of varying severity and was found to have an almost immediate action on both the local and the general conditions of dysentery, for, within 24 hours after the injection of the serum, the colic, the tenesmus, and the extreme desire to go to stool either greatly diminished or absolutely disappeared. Moreover, the stools became faeculent and were reduced in number to one per diem. The general condition of the patients improved *pari passu* and in all the cases treated the duration of the disease was much shortened. In mild cases the patients were well in two or three days, in fairly severe cases in from three to four days, and in very severe cases in from four to six days. Of four patients who were considered as doomed three recovered in 8, 11, and 20 days respectively. The fourth died on the thirteenth day. The period of convalescence was rendered short and easy. Certain patients who had been treated in the usual way without improvement were submitted to the serum treatment and on the following day they showed marked improvement, while they very soon completely recovered. The earlier in the course of the disease that the serum is applied the better does it act. It exercises, however, a most favourable influence upon chronic cases in doses of 20, 30, or 60 cubic centimetres, according to the severity of the case. The dose can be repeated on the following day if the improvement is not very obvious and in extremely severe cases from 80 to 100 cubic centimetres can be injected on the first day and repeated if necessary on the following days. M. Vaillard and M. Dopter are of opinion that the serum treatment of dysentery is incomparably superior to the other methods of treatment at present in use.

Serum Therapy in Typhoid Fever.

At the same meeting of the Academy of Medicine M. Brunon read a note upon the above subject. Out of one group of 100 children suffering from typhoid fever and treated by antityphoid serum there were four deaths and of these four one was only treated with serum in the last extremity. In another group of 82 children also suffering from typhoid fever and treated by ordinary methods there were 14 deaths. Both groups were treated in the same hospital. The patients treated with serum were also given hot or warm baths every three hours during the day and in the intervals between the baths they had wet packs round the thorax and abdomen. Their diet was liquid and plentiful. After an injection of serum the temperature generally rose from 0·5° to 1°C., which rise persisted for from two to five days. 50 patients who were injected in the first week of the disease all recovered; of 36 injected during the second week one died; and of 14 patients injected later than the second week three died. The mean duration of the illness was 18 days in the first batch, 20 days in the second, and 40 days in the remainder.

Extraction of a Foreign Body from the Right Bronchus by Direct Bronchoscopy.

At a meeting of the Society of Surgery held on Feb. 21st M. Picqué showed a 50 centime piece which M. Guisez had extracted from an adult patient under his care

by means of direct bronchoscopy. When extracted the coin had been in the respiratory tract for four weeks. Directly after its inspiration there had been an intense feeling of suffocation but this soon passed off. The patient felt no inconvenience from the coin until within a few days before he sought advice, which he did on account of pain, purulent sputum, and an attack of "fever." Radiography clearly showed the coin lying at the bifurcation of the right bronchus. Direct bronchoscopy confirmed this and M. Guisez was able with ease to seize and to extract the coin by means of a special pair of forceps. Recovery was uneventful and M. Picqué showed the man at the meeting perfectly well.

Cæsarean Operation repeated in the Same Woman.

At the February meeting of the Society of Obstetrics, Gynæcology, and Pædiatry M. Fruhinsholz read a paper on a case of Cæsarean operation repeated three times in the same woman. The woman had had two labours terminated by craniotomy and the third and fourth pregnancies resulted in Cæsarean operation. At the eighth month of the fifth pregnancy the waters broke spontaneously. A third Cæsarean operation was therefore carried out. Numerous adhesions were found between the uterus and the abdominal walls (*adhérents utéro-pariétales*) which were divided with the knife. The child, who was extracted alive, weighed 1800 grammes, and the placenta was implanted above and to the front. A sixth pregnancy terminated spontaneously by abortion. M. Fruhinsholz asked if it were possible that utero-parietal adhesions were the cause of the interruption of pregnancy before full term. He had collected various cases of Cæsarean operation repeated in one woman within the last few years. Contrary to the instance which had come under his own personal observation he found that in nearly all the other cases the weight of the children increased with each pregnancy terminated by a Cæsarean operation. The utero-parietal adhesions had been found in 30 cases out of 52. They constituted a kind of accidental hysteropexy which is in no way comparable to the operation of the same name. In some few cases these adhesions brought about premature labour or abortion, and as a rule these consequences were due to syphilis or albuminuria. In no case was difficulty of labour brought about by this special kind of hysteropexy and this was probably due to the fact that the uterus became fixed to the parietal wall when it was pregnant, whereas in operative gynæcology it was fixed in the non-pregnant condition.

An Enucleable Cancer of the Kidney.

At a meeting of the Surgical Society held on Feb. 28th M. Richelot gave an account of the case of a woman, aged 60 years, who when seen in December last exhibited an enormous tumour of the abdomen. The tumour was well defined and very mobile as if it had a definite pedicle. M. Richelot at first took it for an ovarian cyst. Later, however, the patient suffered from frequent attacks of hæmaturia and he then thought that the growth might be one of the kidney. Laparotomy confirmed this idea and the growth was easily shelled out from its capsule. A histological examination made by M. Cornil showed that the growth was a cancer of the pelvis of the kidney, a condition which is extremely rare.

March 5th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Opening of the Kaiserin Friedrich Haus.

THE Kaiserin Friedrich Haus in Berlin, an institution for post-graduate study (*ärztliches Fortbildungswesen*), was formally opened on March 1st on the occasion of the silver wedding of the Emperor and the Empress. Post-graduate study has undergone great development in Germany during the last two years. Lectures and demonstrations which might be attended on payment of fees have for a long time been held at the universities during the vacations, but the present movement has for its object to provide general practitioners with special courses and lectures free of charge. The work is under the control of a central committee, which has its offices in Berlin, and includes members of the Government, the medical faculty of the university, and leading men of the profession. There are also in the larger towns local committees in connexion with the central committee. During her last illness the late Empress Frederick devoted considerable attention to the subject of post-graduate instruction for medical practitioners and she decided to found an institution which should be a centre of such instruction; she accordingly bequeathed a large sum of money for the purpose, the remainder being raised by private subscription. In the Kaiserin Friedrich Haus there are lecture rooms, laboratories, a collection of medical and surgical instruments and apparatus, and a medical exhibition which is open to the general public and shows the advances that are being made in medical knowledge. The present Emperor and Empress are also interested in the matter and were present at the opening ceremony which was on an elaborate scale and of an impressive character. The Court and all the members of the Royal Family, the Ministers, various other members of the Government, and representatives respectively of the University, the city of Berlin, the civilian medical profession, and the army medical corps were in attendance. Sir Felix Semon represented King Edward, Dr. Blondel of Paris represented the medical profession of France, and Dr. von Gross that of Hungary. On the arrival of the Emperor and the Empress Professor von Bergmann read an address of welcome, thanking the Imperial Family for the interest which they had displayed in the advancement of medical science. Sir Felix Semon, Professor Loebker (President of the German Practitioners' Association), General Staff-Surgeon Dr. Schjerning, and the Prussian Minister of Education, Dr. Studt, also delivered addresses, to which the Emperor replied, expressing his satisfaction with the work which the committee had accomplished in carrying out the intentions of the Empress Frederick. The Emperor and his party then made a tour of the building under the guidance of Professor von Bergmann.

Alcoholism in Childhood.

An investigation on the subject of the consumption of alcoholic beverages by children was lately carried out in Nordhausen, a city famous for the production of a very popular liquor. It was found that of 49 boys who attended a certain school 38 had taken wine, 40 had taken spirits, and all had taken beer; of 28 schoolgirls, 27 had taken wine and 14 had taken spirits; 21 said that they liked beer; 14 used to drink it regularly to make themselves strong, as they expressed it; and 16 admitted that they had been intoxicated once or oftener, especially on the occasion of weddings, picnics, or birthday entertainments. In another school at Ortelsburg in East Prussia the teacher lately discovered that a number of boys had in their possession bottles of spirits which had been given to them by their parents, and some boys were the worse for liquor before the beginning of lessons so that they had to be sent home.

March 5th.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

The Mecca Pilgrimage.

THE returning pilgrims are now undergoing disinfection at Tor and this year's pilgrimage has so far been declared free from exotic diseases such as cholera and plague. This is a convenient time to draw attention to the present rules which govern the coming and going of Egyptian pilgrims to the holy places. Last year the numbers proceeding to Mecca were 38,170, including some 13,000 non-Egyptian pilgrims who went through the Suez Canal in quarantine, about 10,000 others travelling with first-class tickets who embarked at Suez, and the remainder were Egyptian pilgrims who also took steamers at Suez for Jedda. All these, except 85, were duly accounted for on "the return" journey. No less than 88 of the Egyptians died on the journey and 37 died shortly after returning to Egypt, mostly from non-infectious diseases, but including one case of small-pox, one of typhus fever, and eight of dysentery and diarrhœa. 76 were found impersonating dead pilgrims or were furnished with passports which did not belong to them, but most of these were eventually traced and dealt with by the police. The number of Egyptian pilgrims registered in 1905 is far in excess of any former year, this being due to the better arrangements now prevailing. It is now ten years since the sanitary department, presided over by Sir Horace Pinching, with Dr. J. E. Creswell at Suez, as his local representative, decided to register formally all out-going pilgrims and to keep them under observation after their return for a period of seven days. These measures, which cannot be too highly praised, are in addition to the precautions taken by Dr. M. A. Ruffer and the quarantine board at Tor. So late as 1895, three hours

after a shipload of pilgrims had been landed at Suez, seven dead pilgrims were brought to the hospital mortuary gathered from the quay, railway station, and the streets of the town. The pilgrims freed from quarantine control were then allowed to disperse to their homes, whether suffering from diarrhœa or not. Readers must here be reminded that practically all the cholera epidemics from which Egypt has suffered in times past can be traced to infection introduced by returning pilgrims. It became necessary to revise the whole system of registration and passports to oblige the pilgrims to travel by one known route, to see that they were financially equipped for the journey, and to control the steamers by a set of regulations which limit the number of pilgrims to the capacity of each ship. The present system is as follows. An Egyptian desirous of making the pilgrimage must secure a special passport from the mudir of his district or the governor of his town. This passport contains a detailed description of the individual and spaces for receipts for quarantine fees and caution money deposited by the pilgrim. The man must then visit the sanitary inspector of his district, who satisfies himself that the passport is in order, so that he will be able to identify the individual on his return. Later, the passport must be signed by the passport officer at Suez on his outward journey, who again satisfies himself that all is in order before embarkation. On his return journey the passport officer at Tor forwards the document direct to the sanitary inspector of the pilgrim's district. On emerging from Tor the pilgrim is given a voucher which enables him to land at Suez and he is then instructed to proceed direct to his home and present himself daily to the sanitary inspector who at the end of seven days hands back to him his passport duly signed in order that he may be able to withdraw his caution money from the local authority. This system may sound a little complicated but it works extremely well in a country where the people are accustomed from time immemorial to obey the orders of the Government officials. When the passport is obtained the intending pilgrim is able to buy his steamer ticket for the Red Sea voyage at his local post-office. He is helped through all the difficult details by special tourist agents who are not yet under sufficient control. They visit Egypt, Syria, Turkey, and Algeria, and perhaps number about 300. They arrange for the land journey by camel from Jedda to Mecca, personally conduct their clients to lodgings in the holy city, and are capable of pointing out how the quarantine regulations can be best circumvented on the return journey. For instance, pilgrims may be invited to return by Syria or may be shipped across in *dhows* to landing places between Suez and Kossair, whence they can reach their homes by camel journey across the desert. Suez for some four months before the great feast is crowded with pilgrims, sometimes as many as 8000 waiting there for steamers. First come the rich Turks and Russians, then the Syrians, and later the Egyptians. Moors dribble in all through the year, regardless of time, for they make the journey on foot, as also do negroes from Bornu and Lake Chad. The returning pilgrims do not stay in Suez unless one of the party is detained in hospital, when his friends insist on remaining until his discharge. Now that disinfection is carried out more rigorously at Tor many Egyptian pilgrims postpone buying presents for their friends until their return to Suez, which occasions some delay. The number of pilgrims detained in the Suez hospital last year was 152, including seven cases of small-pox, three of measles, three of relapsing fever, five of malaria, and one of enteric fever. The bulk of the cases were worn out by fatigue or were suffering from slight ailments aggravated by the voyage and only required rest, but the number of cases of infectious diseases found among the pilgrims is large when it is remembered that they had left Tor only 12 hours before and that they had been ten days under observation there.

Cairo, Feb. 25th.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berne:* Dr. E. Tavel has been appointed Extraordinary Professor of Surgery. Dr. Wilhelm Kolle of Berlin has been appointed Professor of Hygiene and Bacteriology.—*Breslau:* Dr. Hermann Triepel has been appointed First Prosector in the Anatomical Institute with the rank of Honorary Extraordinary Professor.—*Budapest:* Dr. Cornel Preisich has been recognised as *privat-docent* of Children's Diseases.—*Heidelberg:* Dr. Hermann Steudel has been appointed Extraordinary Professor of Physiology.

Obituary.

THOMAS EDMONSTON CHARLES, M.D., LL.D. EDIN., F.R.C.P. LOND.,

DEPUTY-SURGEON-GENERAL, I.M.S. (RETIRED); HONORARY PHYSICIAN TO THE KING.

WE have received from Sir Joseph Fayrer the following sympathetic account of the career of the late Deputy-Surgeon-General Thomas Edmonston Charles:—

"It is with the deepest regret that I record the death of my old and much-loved friend and brother officer, Thomas Edmonston Charles, of the Indian Medical Service, which occurred at Flushing, near Falmouth, on March 2nd, from exhaustion, the result of anæmia and senile changes and consequent deteriorated health. He had resided for the last few years for the sake of his health in the mild climate of Flushing and in some respects had improved, but latterly there had been a sudden deterioration of health, with the fatal termination above recorded.

Thomas Edmonston Charles was born in Calcutta in 1834. His father was an eminent divine of the Scotch Church in Calcutta and was much respected by all classes. Dr. Charles was educated in Edinburgh, where he took the M.D. degree in 1855 and the diploma of L.R.C.S. Edin. in the same year. In 1856 he proceeded to India as a member of the Bengal Medical Service. Soon after arrival he was attached to the 1st Bengal Fusiliers and served with them during the campaign of 1857-58, taking part in the celebrated march from Dugshai to Umballa. He was in medical charge of 400 men of that regiment and two squadrons of H.M. 9th Lancers, forming the advanced brigade of the army. He was present with the regiment at the battle of Badleeka Sarai on June 8th, 1857, and throughout the entire siege of Delhi till its final capture on Sept. 20th, when he accompanied the column under Brigadier J. G. Gerrard, C.B., into the Rewaree district against the Jeypore and Jodhpore rebels. He also accompanied Sir Thomas Seaton, K.C.B., during his operations in the Doab, was present at the actions of Gungeyree and the battle at Ruttialee and the affair at Mynpoorie. Later he was with the army on its second advance on Lucknow under Lord Clyde, accompanied the storming party of the 1st Bengal Fusiliers, who took the enemy's first position at the Chuker Kotee and other points in their line of defence, and was present throughout the rest of the siege of Lucknow. Subsequently he was with the column under Sir Hope Grant, K.C.B., in Oude. Dr. Charles was mentioned in the despatch of Major Hume of September, 1859, received the Indian medal and clasps for Delhi and Lucknow, and in 1859 was appointed garrison assistant surgeon at Allahabad.

Soon after this Dr. Charles returned to Calcutta and on the retirement of Professor Wilson of the Medical College of Bengal from the post of professor of midwifery and obstetric physician Dr. Charles was appointed in his place and performed the duties of the chair for many years with great success and with great benefit to the cause of medical education in India. Not only as an obstetric but as a general physician Dr. Charles met with great success and obtained a large practice in the Presidency. But the trying and responsible duties of this work in an Indian climate in time produced their natural results and rendered it necessary for him to resign in 1880 an appointment which had been to him the source of much professional repute and its consequent advantages. While in Calcutta he founded and superintended the construction of the Eden Hospital, a service to which he always reverted with much satisfaction. On returning to Europe Charles did not relinquish the practice of his profession but continued it for some years at Cannes where he became as popular and as highly esteemed as he had been in Calcutta. In 1886 he left Cannes and went to Rome where he also became well known and much esteemed as a physician, while he also made a special study of archæology and delivered lectures before the British and American Archæological Society. He remained in Rome until failing health and increasing debility suggested the expediency of trying the influence of the mild climate of West Cornwall and in 1902 he took up his residence in Flushing where he had previously wintered for some years and was to be seen most days sailing in his boat in the harbour. With his usual energy he interested himself in

local matters, political and otherwise, and from his generous and kindly nature soon became very popular among all classes. He was chairman of the Truro division of the British Medical Association for two years and was only prevented by failing health from accepting the office of president-elect of the South-Western branch, which was offered him a few days before his death. He had also just been elected a vice-president of the Falmouth Hospital. In short, he seemed to be so active as to afford ground for hope that his general health might be maintained sufficiently to enable his valuable life to be prolonged for many years, but this was, unhappily, not to be, and he sank on March 2nd, worn out by a life of strenuous and responsible work, much of it in an Indian climate.

Dr. Charles was a many-sided man. In addition to his study of archæology he was much interested in microscopical research and revised the Sydenham Society's translation of Marchiafava's and Bignani's work on malarial fever He was, as far as his physical energy would permit, an enthusiastic mountaineer, visiting Switzerland regularly for some years, and climbing, among other mountains, the Matterhorn and Mont Blanc. He was also a fisherman in early life and took interest in sport of all kinds, though his pursuits were here limited somewhat by myopia. For many reasons few names will be longer remembered in India than that of Dr. Charles. His great professional ability, the strenuous and energetic manner in which he performed all his duties, his high sense of honour, his amiable character, and his earnest desire to be of use to everyone not only enhanced his value as a public servant but endeared him to all with whom he was associated, and especially to those who, like the present writer, had known him throughout his career and appreciated the sterling qualities of his character."

PROFESSOR MAX NITZE.

OUR Berlin correspondent writes:—Medical science has sustained a severe loss by the sudden death of Professor Max Nitze of Berlin, who died from apoplexy on Feb. 24th. The name of Professor Nitze will be for ever connected with the cystoscope, an instrument of the utmost value in the diagnosis and treatment of diseases of the bladder. He was born in Dresden in 1848 and received his medical education at the universities of Heidelberg, Würzburg, and Leipsic. On becoming qualified in 1874 he received an appointment as assistant medical officer at the municipal hospital in Dresden, where he made the first attempt to examine the interior of the bladder by endoscopy. From Dresden he went to Vienna, where he continued his researches and finally succeeded in constructing the cystoscope which is now in general use. Herr Leiter, the well-known surgical instrument maker in Vienna, carried out Nitze's ideas in a cystoscope which he made and added some technical modifications of his own; the instrument is, therefore, sometimes termed Leiter's cystoscope, though the idea and the plan of construction originated with Nitze. In all the former instruments suggested for the purpose of viewing the interior of the bladder the light was brought from outside, whereas Nitze was the first to introduce a source of light through the urethra into the bladder, so that the whole area of the viscus could be examined. In his first instrument there was a platinum wire which could be heated to incandescence when required and water circulated in it in order to avoid burning the tissues, but in the later patterns the platinum wire was replaced by an Edison lamp. It is well known to medical readers that Nitze's invention was the beginning of a new era in urology, as it enabled a surgeon to make a diagnosis by direct inspection of the bladder and assisted him greatly in deciding what measures were to be taken. Nitze published the results of his researches in his "Handbook of Cystoscopy" and his "Atlas of Cystoscopy," which must be regarded as the standard works in this special branch of surgery. After passing some time in Vienna he settled as a specialist in Berlin, where in 1889 he was recognised *privat-docent* at the University and in 1900 received an appointment as extraordinary professor. The great importance of Nitze's discovery was far from being at once recognised; he never had any official position at a public hospital but was obliged to carry on his researches in his private clinic. He had a very large practice, his patients including members of reigning families and foreigners from every part of the world. He lived very plainly, having few interests beyond his professional work.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Elisha H. Gregory, professor of surgery in the Washington University.—Dr. George R. Fowler, professor of surgery in the New York Polyclinic and Hospital.—Dr. John S. Ely, professor of medicine in Yale University.—Dr. Rudolf Schelske, formerly *privat-docent* of ophthalmology in the University of Berlin and director of the eye department of the Hamburg General Hospital, aged 75 years.—Dr. Léon Colin, formerly inspector-general of the medical department of the French army and president of the Academy of Medicine.—Dr. Cuffer, physician to the Necker Hospital, Paris, where he lectured on clinical pathology.

Medical News.

UNIVERSITY OF CAMBRIDGE.—Mr. F. W. Keeble, M.A., Gonville and Caius College, has been approved for the degree of Doctor of Science.—At the Congregation on March 1st the following medical degrees were conferred:—

M.D.—C. F. Hadfield, Trinity.
M.B.—A. D. Brunwin, R. C. Mott, and W. H. Orton, Trinity; and W. H. Thresher, Gonville and Caius.
B.C.—W. H. Orton, Trinity; and E. D. Anderson, Pembroke.

—An address of condolence with the Queen on the death of His Majesty King Christian of Denmark has been presented on behalf of the University and has been graciously received by Her Majesty.—The Allen studentship for research in mathematics and natural science has been awarded to P. E. B. Jourdain, B.A., of Trinity College.

LITERARY INTELLIGENCE.—Messrs. Archibald Constable and Co., Limited, have in the press a work entitled "On Leprosy and Fish-Eating" by Mr. Jonathan Hutchinson who has recently made tours in South Africa and India having as their object the examination of the conditions under which leprosy prevails. The history of leprosy, its nature, its prevalence in different countries, and the conditions under which it has disappeared from many countries are all fully discussed and facts are brought forward in support of the theory that it is not ordinarily contagious and that its real cause is the use as food of badly cured fish. There are chapters on the influence of sex, of religious creed, and of poverty in relation to leprosy, and the measures for suppression are fully discussed. The volume contains maps and illustrations.—"The Anæsthetic Technique for Operations on the Nose and Throat," by Mr. A. de Prenderville, will be published in a few days by Mr. Henry J. Glaisher of Wigmore-street.

VOICE DESTRUCTION.—At Christ Church, Oxford, on March 2nd a lecture was delivered by Miss C. D'Orsey in connexion with the University branch of the Voice Training Society. Dr. William Osler, the Regius professor of medicine, was in the chair, and Canon Ince, the Regius professor of divinity, was also present. Miss D'Orsey, who took "voice destruction" as her subject, said that the voice was, or should be, a musical instrument. The two main causes of voice destruction were (1) want of voice training and (2) wrong methods of vocal training. The absence of voice training caused a very large amount of the voice destruction which was daily going on. Inability to control the motor power of the breath, especially in expiration, was fatal to the proper action of the vocal cords. The speech of most persons suffered from want of resonance and from monotony or the absence of modulation. Canon Ince said that what was wanted was to bring the matter distinctly before the men resident at the University, whether they were going to be clergymen or public speakers, so that they might avail themselves of the opportunities of instruction which were provided. Professor Osler said that the subject was one in which he had been interested for some years and it was unquestionably of practical importance to young men. Speaking generally, there was no country where the voice was better than in England. An Englishman, however, on going abroad, especially to America, acquired the voice of the natives in a few years, whereas an Irishman could be

recognised anywhere and a Scotchman's voice remained unaltered as long as he lived. It was to be wished that every undergraduate in Oxford should have his voice trained systematically so that he could stand, think, and talk at the same time. This, however, was a difficult accomplishment which required a good deal of training. All who were interested in education ought to encourage the movement and the Education Department in this country might learn something from the example of France.

Mr. T. D. Smith, who died on March 3rd, at the Royal Naval College, Osborne, was a son of Mr. Thomas Davidson Smith, a medical man of Moor Platt, near Lancaster. Born in 1875, he was educated at Lancaster Royal Grammar School and later at Jesus College, Cambridge, where he obtained first-class honours in the Natural Science Tripos of 1897. After two years as science master at Eastbourne College he entered with a scholarship at the London Hospital where he obtained many distinctions. He won the gold medal for physiology in the London M.B. in 1901 and for two years he was the editor of the *London Hospital Gazette*. Rather less than a year ago he was appointed assistant master at the Royal Naval College, Osborne, where he died after a few days' illness.

PRUDENTIAL ASSURANCE COMPANY, LIMITED.—The fifty-seventh annual report of this company, dealing with the year ending Dec. 31st, 1905, shows that the number of policies issued during the year in the ordinary branch was 75,293, assuring the sum of £7,211,427 and producing a new annual premium income of £395,029. The premiums received during the year were £4,123,318, being an increase of £154,302 over the year 1904. The claims of the year amounted to £1,812,618. The number of deaths was 7437 and 7775 endowment assurances matured. The number of policies in force at the end of the year was 773,051. In the industrial branch the premiums received during the year were £6,139,050, being an increase of £159,715. The claims of the year amounted to £2,261,748. The number of deaths was 238,220, and 3344 endowment assurances matured. The total number of policies in force at the end of the year was 16,065,268: their average duration is 11 years. The assets of the company in both branches, as shown in the balance-sheet, are £59,464,376, being an increase of £4,104,871 over those of 1904.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Pharmacy Bill.

THE Pharmacy Bill, which has been introduced "to provide for the further regulation of the sale of poisons and the compounding of medical prescriptions and to amend the Pharmacy Acts, 1852 and 1868," has the formal support of Mr. IDRIS, Sir HENRY KIMBER, Mr. HENNIKER-HEATON, Mr. JAMES GIBB, Mr. REMNANT, Mr. ELLIS GRIFFITH, Mr. CROOKS, Mr. COWAN, Mr. GULLAND, and Mr. O'MALLEY. It was brought in by Mr. WINFREY.

Sale of Whisky Bill.

This Bill has been put down for second reading on Wednesday, March 21st. It is officially described as a measure to amend the law relating to the sale of whisky and to provide for the marking of casks and other vessels containing whisky. Mr. ARCHIBALD WILLIAMSON has taken charge of it and he is supported by Mr. SUTHERLAND, Mr. CATHCART WASON, Mr. BILLSON, and Mr. HARMOOD-BANNER.

Importation of Wines.

A useful return, in view of current controversies and the recent article on Clarets in THE LANCET, has been ordered at the instance of Sir EDWARD CLARKE. It will show the quantity of wines at the various degrees of strength which were imported into the United Kingdom in 1905 from Spain, Portugal, Madeira, France, Germany, Holland, Italy, and other countries. Last year a similar return was prepared.

The Government and the Cruelty to Animals Act.

As a result of representations made by Colonel LOCKWOOD and others the Home Secretary has promised to look into the administration of the Cruelty to Animals Act and see if it might not be well to have a full inquiry into the whole matter. Colonel LOCKWOOD had suggested that dogs should be excluded from the operating table. It was pointed out by Sir JOHN BATTY TUKE that Parliament and the public have been largely responsible for the increase in the number of experiments. Almost every municipal authority has its laboratory in which experiments are carried out for the purpose of obtaining knowledge that will be used in the alleviation of human suffering, and he further showed that thousands of the experiments are undertaken for the identification of such diseases as diphtheria and for the production of antidotes for tetanus and hydrophobia. But while he is quite satisfied himself that the way in which the Act is carried out is most thorough and complete, he admits that a misapprehension exists in the public mind, and on that account he is at one with the Home Secretary in thinking that a full investigation might be desirable.

Certifying Surgeons.

The proposal concerning certifying surgeons which was embodied in the Accidents Bill of last session, and which caused considerable apprehension, has been omitted from the Bill introduced by the Government this week. It was explained on Tuesday by Mr. COCHRANE, the ex-Under-Secretary for the Home Office, that the late Government had had no desire to interfere with the duties and emoluments of these officers "who seem to have thought," to quote Mr. COCHRANE'S words "that their sphere of influence and usefulness was to be curtailed." According to Mr. SAMUEL, the new Under Secretary, "the matter was really one of form," but in order to allay any alarm the proposal, such as it was, has now been struck out.

HOUSE OF COMMONS.

WEDNESDAY, FEB. 28TH.

Amendment of the Medical and Dental Acts.

Lord ROBERT CECIL asked the First Lord of the Treasury whether the Government intended to introduce any Bill to amend the Medical and Dental Acts in accordance with the proposals of the British Medical and Dental Associations.—Mr. ASQUITH, who answered, said: I fear that I cannot make any statement as to legislation by the Government on this subject. I understand that the British Medical Association has a Bill in draft and it will perhaps intrust it to a private Member.

A Morgue for Rathmines.

Mr. CLANCY asked the Chief Secretary for Ireland whether his attention had been drawn to the fact that no morgue had been provided for the urban district of Rathmines and Rathgar, with the result that inquests in that district must frequently be held in public houses, while the dead bodies were kept in stables and outhouses; and whether he would, through the Local Government Board, urge on the district council of Rathmines to provide such necessaries as a morgue before proceeding with any further schemes for extending the boundaries of its district.—Mr. BRYCE replied: The circumstances mentioned do not appear to have been brought to the notice of the Local Government Board; but the Board has ascertained that the Rathmines urban district council has decided to include in next year's estimate the necessary provision for the erection of a morgue.

THURSDAY, MARCH 1ST.

The Russian Duty on Medicine.

Sir HOWARD VINCENT asked the President of the Board of Trade whether the new tariff coming into force in All the Russias against British goods increased the duties on the same scale as applied to medicines—namely, from 24 to 40 roubles per pood, the bottles, tins, and paper in which the medicines were packed being included in the weight for duty; and, having regard to the effect such increased duties would have upon British trade with Russia, what representations had been made to St. Petersburg on the subject and with what result.—Mr. LLOYD GEORGE answered: The increase in the Russian duty on medicines from 24 to 40 roubles, referred to in the question, will not be applied to British goods, since the existing rate of 24 roubles has been conceded to France under the new Russo-French Commercial Treaty and can consequently be claimed by British exporters in virtue of the most-favoured-nation provision of the Anglo-Russian Treaty.

FRIDAY, MARCH 2ND.

Poor-law Medical Officers' Salaries.

Dr. G. H. POLLARD asked the President of the Local Government Board whether he would grant a return showing for each Poor-law union the area and the population and the number of medical officers with their salaries, and whether extra fees were paid as required by the Poor-law orders and the annual amount of such extra fees.—Mr. JOHN BURNS answered: I understand that the Poor-law Commission is considering what statistics it will find it necessary to obtain for the purposes of its inquiry. I will communicate with it with a view of ascertaining whether it proposes to get information on the subject referred to in the question, and if so, whether it could be made available for the honourable Member.

Commission on Irish Poor-laws.

Mr. HUGH BARRIE asked the Chief Secretary for Ireland when it was expected that the report of the Viceregal Commission appointed by the late Government with reference to the Irish Poor-laws would be issued.—Mr. BRYCE replied: I am informed by the Commissioners that they hope to present their report about the end of next month.

Lunacy in Ireland.

Mr. J. P. FARRELL asked the Chief Secretary for Ireland whether he was aware that whilst the capitation cost in Mullingar Asylum had gone up to 11s. per head the Government grant of 4s. remained the same; and whether, having regard to the increase of lunacy in Ireland and the decrease of population, coupled with an increase of taxation, the Government would consider the advisability of increasing the Irish capitation grant per head for asylum patients from 4s. to 7s. 6d. per week.—Mr. BRYCE answered: The net capitation cost in respect of maintenance in Mullingar Asylum amounts to 9s. 9d. per week; but, inclusive of repayments for loans in respect of building, it is 12s. 8d. per week. The Government grant of 4s. per week is fixed by statute and I am unable to hold out any hope of legislation to increase the amount. I am informed that the capitation cost in this asylum has not recently increased as implied in the question but is now considerably less than it was a few years ago.

MONDAY, MARCH 5TH.

Medical Examination of Volunteers.

Mr. M'CRAE asked the Secretary of State for War whether the order or regulation in the War Office circular of July 11th, 1905, requesting general officers commanding to report results of a medical examination of volunteers under their command as to fitness for active service abroad was still in force; if so, whether it was proposed to countermand the same; and further, if he could say whether any volunteers were punished for non-compliance with the order and what steps would be taken to deal with any such cases.—Mr. HALDANE replied: The circular referred to is not now in force. There were a few cases in which volunteers were punished in connexion with this circular. Some of these cases are now receiving the consideration of the Army Council.

TUESDAY, MARCH 6TH.

Standard of Meat Condemnation.

Mr. MONEY asked the President of the Local Government Board whether his attention had been directed to the fact that the standard of meat condemnation, strongly urged by the Local Government Board upon local authorities in 1901, was not infrequently ignored in whole or part by sanitary authorities; and whether he would, in the interest of the public health, take steps to make the standard referred to absolutely compulsory.—Mr. BURNS answered: According to the latest information I have received there seems no reason to doubt that as regards the carcasses of cattle the standard referred to is commonly acted upon by the officers of local authorities. I understand, however, that this is not the case to anything like the same extent as regards the carcasses of pigs. The Local Government Board has on several occasions impressed upon local authorities the importance of uniformity of action in dealing with tuberculous meat but legislation would be necessary to make the standard compulsory. I could not promise to propose legislation on the subject pending the report of the Royal Commission on Tuberculosis.

BOOKS, ETC., RECEIVED.

ASSOCIATION OF AMERICAN PHYSICIANS (Recorder of the Association: Dr. Solomon Solis Cohen, 1525, Walnut-street, Philadelphia, U.S.A.)

Transactions of the Association of American Physicians. Twentieth Session, held at Washington, D.C., May 16th and 17th, 1905. Vol. XX. Price not stated.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent-garden, W.C.

The Treatment of Gonorrhœa in the Male. By Charles Leedham-Green, M.B., F.R.C.S., Senior Surgeon to Out-patients, Queen's Hospital, Birmingham. Price 5s.

Maladies Caused by the Air we Breathe Inside and Outside the Home. By Thomas Oliver, M.A., M.D., LL.D., F.R.C.P., Professor of Physiology in the University of Durham; Physician to the Royal Infirmary, Newcastle-on-Tyne. Being the Harben Lectures for 1905. Delivered in the Lecture Theatre of the Royal Institute of Public Health. Price 3s. 6d. net.

Examination Questions for the Diploma of Public Health. By Hugh R. Jones, M.A., M.D., D.P.H. Price 2s. 6d. net.

BAILLIÈRE, J. B., ET FILS, 19, Rue Hautefeuille, Paris.

Les Accidents du Travail. Etude Clinique et Médico-Légale des Affections Internes Produites par ces Accidents. Par le Dr. Ch. Vibert, Expert près le Tribunal de la Seine. Chef des Travaux d'Anatomie Pathologique au Laboratoire de Médecine Légale de la Faculté de Médecine. Price Fr. 10.

Nouveau Traité de Médecine et de Thérapeutique. Publié en Fascicules sous la Direction de MM. P. Brouardel et A. Gilbert. VII. Maladies Vénériennes. Par F. Balzer, Medecin de l'Hôpital Saint-Louis. Price F. 6.

BLACK, ADAM AND CHARLES, Soho-square, W.

Rome. A Practical Guide to Rome and its Environs. By Eustace Reynolds-Ball, B.A., F.R.G.S., Author of "Cairo of To-Day," "Jerusalem," "Mediterranean Winter Resorts," "Paris in its Splendour," &c. With eight illustrations in colour by Alberto Pisa and three plans. Price 2s. 6d.

BUMPUS, JOHN AND EDWARD, 350, Oxford-street, W.

A Piece of Delf and Other Fragments. Price not stated.

CHAPMAN AND HALL, LIMITED, London.

The Origin of Life: Its Physical Basis and Definition. By John Butler Burke. Price 16s. net.

Reference Handbook of the Diseases of Children. For Students and Physicians. By Prof. Dr. Ferdinand Frühwald, Chief of Clinic in the Vienna Polyclinic. Edited, with additions, by Thompson S. Westcott, M.D., Associate in Diseases of Children in the University of Pennsylvania. Price 18s. net.

CHURCHILL, J. AND A., 7, Great Marlborough-street, W.

Clinical Applied Anatomy or the Anatomy of Medicine and Surgery. By Charles B. Box, M.D., B.S., B.Sc. Lond., M.R.C.P. Lond., F.R.C.S. Eng., Physician to Out-patients, St. Thomas's Hospital, and Assistant Physician to the London Fever Hospital, Lecturer on Applied Anatomy and Demonstrator of Morbid Anatomy, St. Thomas's Hospital, and W. McAdam Eccles, M.S. Lond., F.R.C.S. Eng., Assistant Surgeon, Joint Lecturer on Anatomy and Demonstrator of Operative Surgery, St. Bartholomew's Hospital, Examiner in Anatomy for the Fellowship of the Royal College of Surgeons, England, and Examiner in Surgery for the Society of Apothecaries. Price 12s. 6d. net.

COBLENTZ, OSCAR, Maassenstrasse, 13, Berlin, W.

Die Behandlung der Krankheiten der Nase und des Nasenrachens. Von Prof. Dr. A. Onodi, Budapest, und Prof. Dr. A. Rosenberg, Berlin. Price, paper, M. 8.50; bound, M. 10.

CORNISH BROTHERS, LIMITED, 37, New-street, Birmingham.

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Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BULLEY, F. M., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Physician at St. Thomas's Hospital.

CASSIDY, M. A., M.B., B.C. Cantab., has been appointed House Physician to Out-patients at St. Thomas's Hospital.

COLES, C. ST. A., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Physician at St. Thomas's Hospital.

COX, R. J. H., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon to Out-patients at St. Thomas's Hospital.

CROOKS, JAMES, M.D., C.M. Toronto, L.R.C.S. Edin., L.S.A., has been re-appointed Medical Officer of Health of Chard (Somerset).

CUNNINGHAM, N. R., M.R.C.S., L.R.C.P. Lond., has been appointed to the Ear Department and to the Electrical and X Ray Department at St. Thomas's Hospital.

DICKSON, A. N., M.R.C.S., L.R.C.P. Lond., has been appointed to the Skin Department at St. Thomas's Hospital.

DREW, J. H., M.B., B.S. Lond., has been appointed Resident House Surgeon at St. Thomas's Hospital.

EYRE, C. R. B., M.R.C.S., L.R.C.P. Lond., has been appointed Senior Ophthalmic House Surgeon at St. Thomas's Hospital.

FALK, H., M.B., B.C. Cantab., has been appointed Resident House Surgeon at St. Thomas's Hospital.

FOOTNER, G. E., M.B., B.C. Cantab., has been appointed Senior Casualty Officer to St. Thomas's Hospital.

GIBBS, S. R., M.R.C.S., L.R.C.P. Lond., has been appointed Junior Obstetric House Physician to St. Thomas's Hospital.

GOTELEE, H. E., M.R.C.S., L.R.C.P., has been appointed Junior Ophthalmic House Surgeon at St. Thomas's Hospital.

GRAY, H. T., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Surgeon at St. Thomas's Hospital.

HALL, I. WALKER, M.D. Vict., has been appointed Professor of Pathology at the University College, Bristol.

HEGGS, T. BARRETT, M.D., Ch.B. Aberd., D.P.H. Camb., has been appointed Medical Officer of Health to the combined Districts of Sittingbourne and Milton, and Medical Superintendent of their Isolation Hospitals.

HEWETT, F. S., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon to Out-patients at St. Thomas's Hospital.

HITCHINS, CHARLES VERNON, M.R.C.S., L.S.A., has been appointed Honorary Consulting Surgeon to the Weston-super-Mare Hospital.

HOOKER, A. W., M.B., B.S. Lond., has been appointed Resident House Surgeon at St. Thomas's Hospital.

HOWARTH, W. G., M.B., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon to Out-patients at St. Thomas's Hospital.

HOWITT, A. B., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon to Out-patients at St. Thomas's Hospital.

JEWESBURY, R. C., M.B., B.Ch Oxon., has been appointed Resident House Physician at St. Thomas's Hospital.

LOUGHBOROUGH, A. L., M.R.C.S., L.R.C.P. Lond., has been appointed to the Ear Department at St. Thomas's Hospital.

MACDONALD, S. G., M.R.C.S., L.R.C.P. Lond., has been appointed to the Throat Department and to the Children's Surgical Department at St. Thomas's Hospital.

MAITLAND, LYTTON, M.B., B.S. Lond., has been appointed House Surgeon at the Great Yarmouth General Hospital.

MASKELL, JOHN WILLIAM, M.R.C.S., L.R.C.P. Lond., has been appointed an Honorary Medical Officer to the Chorley Dispensary and Rawcliffe Hospital.

MEEK, W. O., M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Physician at St. Thomas's Hospital.

PAGE, C. M., M.R.C.S., L.R.C.P. Lond., has been appointed to the Children's Surgical Department at St. Thomas's Hospital.

SANKEY, W. O., M.R.C.S., L.R.C.P. Lond., has been appointed to the Skin Department at St. Thomas's Hospital.

SINGTON, H. S., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician to Out-patients at St. Thomas's Hospital.

THOMPSON, WILBERFORCE, L.R.C.P. Lond., M.R.C.S., L.S.A., D.P.H. Lond., has been appointed Medical Officer of Health for the Bridgwater (Somerset) Rural District.

TOSSWILL, LEONARD ROBERT, M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Surgeon to the Exeter Dispensary.

TRESIDDER, WILLIAM ELLIOT, M.B., B.S. Lond., has been appointed Medical Officer for the Chudleigh District by the Newton Abbot (Devon) Board of Guardians.

WHITEHOUSE, H. B., M.R.C.S., L.R.C.P. Lond., has been appointed to the Throat Department at St. Thomas's Hospital.

WHITTING, R. E., M.B., B.C. Cantab., has been appointed Senior Obstetric House Physician to St. Thomas's Hospital.

WOODHOUSE, CECIL, M.D., B.C. Cantab., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

WRIGHT, F. R. E., M.B. Lond., M.R.C.S., L.R.C.P. Lond., D.P.H., has been appointed Junior Casualty Officer to St. Thomas's Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL, Woodchurch-road, Birkenhead.—House Surgeon. Honorarium £100, with board, residence, and laundry.

BIRKENHEAD BOROUGH HOSPITAL.—Junior Resident House Surgeon. Salary £80 and fees.

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TAUNTON ISOLATION HOSPITAL.—Medical Attendant. Salary £120 per annum.

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WINWICK, WARRINGTON, LANCASHIRE COUNTY ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with apartments, board, attendance, and washing.

NOTICE is given of a vacancy for an additional Dental Surgeon for one year's service in the Army at a salary of £365 per annum and travelling expenses, *vide* p. 703.

Births, Marriages, and Deaths.

BIRTHS.

CAZALET.—On March 1st, at Sutton, Surrey, the wife of Grenville W. Cazalet, L.R.C.P. Lond., M.R.C.S. Eng., of a son.

GAVIN.—On March 2nd, at the Medical Mission House, Anand, India, the wife of Neil M. Gavin, F.R.C.S. Edin., of a daughter.

HUNT COOKE.—On Feb. 9th, at Jhansi, U.P., India, the wife of E. Hunt Cooke, M.A., M.B., B.C., of a son.

MAINGAY.—On March 3rd, at Queen-street, Scarborough, the wife of H. B. Maingay, F.R.C.S., of a son.

SCATLIFF.—On March 4th, at 11, Charlotte-street, Brighton, the wife (*née* Collen) of Harold H. E. Scatliff, M.A., M.R.C.S., of a son.

TIPPING.—On March 4th, at Tyldesley, Palmer's-green, N., the wife of Harold Tipping, M.D. Lond., M.R.C.S., L.R.C.P., of a son.

DEATHS.

CHARLES.—On March 2nd, at Flushing, Cornwall, Deputy Surgeon-General Thomas Edmonston Charles, late of the I.M.S., M.D., LL.D. Edin., F.R.C.P. Lond., K.H.P., aged 71 years.

DAVIDSON SMITH.—On March 3rd, at East Cowes, Thomas Davidson Smith, M.A., M.R.C.S., L.R.C.P., Assistant Master, Royal Naval College, Osborne.

TUCKWELL.—On March 2nd, at his residence, 64, High-street, Oxford, Henry Matthews Tuckwell, M.D., F.R.C.P., in his 72nd year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

PRESCRIBING BY UNQUALIFIED PERSONS.

ON Tuesday, March 6th, Dr. H. R. Oswald held an inquest at Deptford upon the body of a woman named Frost, the wife of an inspector on the S.E. and C. Railway. It was stated that she had died while a student of the Westminster Hospital, named Foster, was attending her. The evidence showed that Mrs. Frost had been in ill-health for some little time. She had an aversion to "doctors" but appeared to have taken some interest in Mr. Foster, who is 30 years of age and who had lodged for a considerable period at No. 24 in the same road, and whom she had known as a connexion of Dr. Foster who practised in Lewisham. The deceased had referred to Mr. Foster as "the young doctor" and her husband, thinking he was qualified, asked his daughter to tell Mrs. Merritt, a woman who was assisting in the house, to call in Mr. Foster. This was on Feb. 28th and on March 1st Mr. Foster saw Mrs. Frost who experienced considerable difficulty in breathing. He sent her a bottle of medicine and later in the day called again. After taking a second bottle of medicine Mrs. Frost improved so much that she was able on March 2nd to sit up for a time, but about 2.50 P.M., after partaking of an egg with warm milk she suddenly expired. Mrs. Merritt and Mrs. Allen, with whom Mr. Foster lodged, both said he did not hold himself out in any way as a medical man, and Mr. Foster said he simply attended Mrs. Frost as a friend and after telling her that he was not qualified but wished he was he made up a bottle of medicine at her request which was designed to relieve the difficulty in breathing which she experienced and also to act as a tonic. He told her also that she must keep her bed. He had no intention of making any charge. A niece of the deceased, who followed Mr. Foster to the sick room within a minute or so of his arrival and who remained there during the whole of the time, said nothing was said in her hearing as to Mr. Foster not being qualified and she did not think anything of the sort could have been said. Dr. H. Bowen Williams, Lewisham High-road, for whom Mr. Foster acts as dispenser from 5 P.M. to 9 P.M. daily, and Mr. E. P. Daniell, New Cross-road, both stated that the prescription from which Mr. Foster had made up the medicine was one generally used in cases of weak heart, accompanied by coughing, and Mr. Daniell said he would probably have given the same medicine but stronger. The latter gentleman, who had conducted a necropsy, found degeneration of the myocardium, which would cause death by syncope. The coroner is reported to have said that Mr. Foster seemed, so far as this patient was concerned, to have had a competent knowledge of the case and did not seem to have been guilty of gross ignorance, inattention, or negligence. It might be that he had been indiscreet but in doing what he did he was only following the custom which prevailed in many hospitals. As a student he was a man who had had considerable experience—six years. In returning a verdict of "Death from natural causes" the jury expressed the opinion that no blame attached to Mr. Foster. We do not quite understand the remark of the coroner as to "the custom which prevailed in many hospitals." No hospital, so far as we know, allows its students to prescribe for patients except under the supervision of a qualified man, such as a house surgeon or house physician or a resident midwifery assistant. We agree, however, in the opinion of the jury that Mr. Foster neither meant nor did any harm, but our advice to him is to get qualified as soon as may be.

A NEW PATHOLOGY OF WARTS.

A NON-MEDICAL correspondent has written to us claiming to have discovered that "the common warts usually found on the face and hands" are caused by the action of water. The principal part of his letter is as follows: "After washing when drying oneself with a towe the same motions are generally made after each ablution, inciaentally leaving the same portions of the skin still moist; this moisture being absorbed by the skin produces the wart. If every part of the skin was rubbed dry after washing no warts would form." We are willing to publish the substance of our correspondent's letter, though we are not in full agreement with his views. It may be remarked that there are several occupations followed by both males and females in which the hands undergo prolonged wetting without any subsequent exceptional tendency to warts.

APPENDICITIS AND ENAMELLED FOOD UTENSILS.

FOR some time past medical men have speculated on the causes of appendicitis and not a few have favoured the mechanical theory, that is, the introduction into the appendix through the food of some sharp irritating substance, such as pips, tooth-brush bristles, grit in flour, particles of antimonial rubber stoppers, and so forth. A lay correspondent makes yet another suggestion. "The present age," he writes, "uses increasingly enamel ware which splinters on the least provocation. I find that not only a food such as porridge will carry the needle-like splinters to the body but that a soup and even tea may very well contain sharply splintered particles of this most dangerous glass." He concludes that the use of enamelled ware

in food utensils should be forbidden and that we ought to return to the former plain iron and copper-ware utensils. There can be no question that the swallowing of spicules of enamel would involve some risk to health but we are not aware that any cases of appendicitis have been conclusively traced to the presence of such in the appendix.

ADULTERATED DRESS FABRICS.

To the Editors of THE LANCET.

SIRS,—Our letter to the *Drapers' Record* under the heading "THE LANCET's Retort" was in no way intended as antagonistic to your efforts to suppress the misrepresentation of textile goods. Unfortunately we had not seen your article on this subject from which the *Drapers' Record* quoted, but your question, "Why is spun silk, which *may* contain 50 per cent. of cotton, not called spun cotton?" conveyed to the reader the impression that spun silk *is* a mixture of silk and cotton and the object of our letter was, as silk manufacturers, to point out that "spun" in connexion with "silk" was a term used in the trade to distinguish a particular class of silk from those of a superior quality.

We are in entire sympathy with your views on this question and should hail with satisfaction any measure that went in the direction of making false representation of goods an offence against the law.

We are, Sirs, yours faithfully,

Leek, Staffordshire, March 6th, 1906. WM. MILNER AND SONS.

*** We are much obliged to Messrs. Milner and Sons for their letter.—ED. L.

THE GEORGE BROWN TESTIMONIAL FUND.

THE following is the second list of subscriptions to the "George Brown Testimonial Fund":—

	£	s.	d.
Previously acknowledged	22	11	6
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The treasurer hopes that those who intend to subscribe will send in their subscriptions without delay to Dr. J. Pollock Simpson, 8, Upper Montagu-street, London, W., as it is intended to close the fund at an early date.

Scirrhus.—We have no information whatever concerning the unregistered practitioner. The patient should not undergo any such treatment without consulting a medical man, to do so means the incurring of considerable risk and probably the wasting of much money.

F.R.C.S.—We do not think that the suggested course would be advisable, or quite fair to the medical man residing in the village.

L.R.C.P. & S.E. will find all the information that he requires in "First Aid to the Injured," by Samuel Osborn, F.R.C.S.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (3 P.M.).

TUESDAY (13th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.).

WEDNESDAY (14th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.).

THURSDAY (15th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.).

FRIDAY (16th).—London (2 P.M.), St. Batholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), St. Mark's (2.30 P.M.).

SATURDAY (17th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (12th).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—8.30 P.M. Paper:—Dr. H. A. Caley: Some Clinical Features of the Several Types of Colitis.—Dr. J. J. Perkins: Syphilis in Medical Practice.

TUESDAY (13th).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Papers:—Mr. A. W. Ormond: Notes on 100 Cases of Intracranial Tumour, with Special Reference to the Ocular Symptoms.—Dr. P. J. Cammidge: An Improved Method of Performing the "Pancreatic" Reaction in the Urine.

CHELSEA CLINICAL SOCIETY (Chelsea Dispensary, Manor-street, King's-road, S.W.).—8.30 P.M. Annual Clinical Debate: Serum Therapy. Prof. R. T. Hewlett, Dr. A. E. Wright, and Prof. G. S. Woodhead will take part in the discussion.

WEDNESDAY (14th).—HUNTERIAN SOCIETY (Court Room, Guy's Hospital,).—3.30 P.M. Cases can be examined. 4 P.M. Clinical Afternoon Meeting.

DERMATOLOGICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—5.15 P.M. Meeting.

THURSDAY (15th).—CHILDHOOD SOCIETY AND THE BRITISH CHILD-STUDY ASSOCIATION (Parkes Museum, Margaret-street, W.).—8 P.M. Lecture:—Dr. J. W. Slaughter: Imagination in Childhood. (Arranged by the Childhood Society.)

FRIDAY (16th).—SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN (11, Chandos-street, Cavendish-square, W.).—5.30 P.M. Cases and Specimens will be shown by Dr. W. Ewart, Dr. C. O. Hawthorne, Dr. E. Pritchard, Dr. F. J. Poynton, Dr. E. Cautley, Dr. K. R. Hay, Mr. D. Drew, Mr. H. Lett, and others.

EPIDEMIOLOGICAL SOCIETY (11, Chandos-street, Cavendish-square, W.).—8.30 P.M. Paper:—Dr. J. T. C. Nash: Evolution in Relation to Disease.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (12th).—ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Erasmus Wilson Lecture:—Mr. J. Sherren: The Distribution and Recovery of Peripheral Nerves studied from Instances of Division in Man.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. H. G. Adamson: Clinique. (Skin.) 5.15 P.M. Lecture:—Mr. E. Clarke: Errors of Refraction, their Diagnosis and Treatment.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—12 noon. Dr. H. Wright: Pathological Demonstration. 2.15 P.M. Medical and Surgical Clinics. 5 P.M. Dr. T. M. Legge: The Medical Profession in Relation to Industrial Disease and the Factory Act.

TUESDAY (13th).—ROYAL COLLEGE OF PHYSICIANS OF LONDON (Pall Mall East).—5 P.M. Goulstonian Lecture:—Dr. H. B. Shaw: Autointoxication.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. C. O. Hawthorne: Clinique. (Medical.) 5.15 P.M. Lecture:—Dr. D. Sommerville: Errors of Digestion in Relation to Disease.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2.15 P.M. Medical and Surgical Clinics. 3 P.M. Dr. S. Taylor: Demonstration in Medical Wards. 5 P.M. Dr. Ball: Middle Ear Suppuration and its Treatment (with lantern slides). (Lecture I.)

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Clinical Lecture:—Dr. A. Turner: Hydrocephalus.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—5 P.M. Prof. W. Stirling: Food and Nutrition. (Lecture VI.)

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Mr. H. W. Carson: Diseases of the Testis.

WEDNESDAY (14th).—ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Erasmus Wilson Lecture:—Mr. J. Sherren: The Distribution and Recovery of Peripheral Nerves studied from Instances of Division in Man.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. M. White: Clinique. (Surgical.) 5.15 P.M. Lecture:—Dr. P. Stewart: The Cerebro-Spinal Fluid and its Diagnostic Importance.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2.15 P.M. Medical and Surgical Clinics. 5 P.M. Dr. Robinson: On Gynæcology.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Lecture:—Dr. H. Mackenzie: Mitral Stenosis.

UNIVERSITY COLLEGE HOSPITAL (Gower-street, W.C.).—4 P.M. Clinical Lecture:—Mr. R. Johnson: Some Forms of Surgical Tuberculosis in Children.

THURSDAY (15th).—ROYAL COLLEGE OF PHYSICIANS OF LONDON (Pall Mall East.).—5 P.M. Goulstonian Lecture:—Dr. H. B. Shaw: Auto intoxication.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Lecture:—Dr. Langdon Brown: Therapeutical Applications of Adrenalin and Allied Bodies.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2.15 P.M. Medical and Surgical Clinics. 4 P.M. Mr. Edwards: Demonstration in Surgical Wards. 5 P.M. Mr. Keetley: Constipation from a Surgical Point of View.

SAMARITAN FREE HOSPITAL FOR WOMEN (Marylebone-road, N.W.).—3 P.M. Lecture:—Dr. McCann: The After-treatment of Gynæcological Operations.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-square, W.C.).—6 P.M. Dr. M. Dockrell: Fungous Diseases of the Skin—I., Tinea Circinata, Imbricata Versicolor; II., Erythrasma; III., Actinomycosis; IV., Madura Foot. (Chesterfield Lecture.)

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Fitzroy-square, W.).—5 P.M. Lecture:—Dr. F. W. Price: The Pathology and Treatment of Mitral Disease. (Post-Graduate Course.)

HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Lecture:—Mr. Waugh: Pharyngeal Abscesses.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—5 P.M. Mr. F. Darwin: The Physiology of Plants. (Lecture III.).

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Dr. G. F. Still: Infant Feeding, with Special Reference to the Production of Rickets.

WESTMINSTER HOSPITAL (Broad Sanctuary, S.W.).—5 P.M. Extra Lecture in the Course of Applied Physiology.

MEDICAL SOCIETY'S ROOMS (11, Chandos-street, Cavendish-square, W.).—8.30 P.M. Demonstration:—Dr. C. Bastian: Heterogenetic Processes (with lantern slides). Followed by an open discussion.

FRIDAY (16th).—ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Erasmus Wilson Lecture:—Mr. J. Sherren: The Distribution and Recovery of Peripheral Nerves studied from Instances of Division in Man.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. M. Yearsley: Clinique. (Ear.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2.15 P.M. Medical and Surgical Clinics. 5 P.M. Dr. Ball: Middle Ear Suppuration and its Treatment (with lantern slides). (Lecture II.)

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Clinical Lecture:—Mr. Ballance: Acute Infection of Brain and Membranes.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—9 P.M. Mr. W. Duddell: How to Improve Telephony.

SATURDAY (17th).—ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—3 P.M. Prof. J. J. Thomson: The Corpuscular Theory of Matter. (Lecture III.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2.15 P.M. Medical and Surgical Clinics. 2 P.M. Dr. Beddard: Demonstration in Medical Wards.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1905, which was completed with the issue of Dec. 30th, were given in THE LANCET of Jan. 6th, 1906.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1905 are now ready. Bound in cloth, gilt lettered, price 1*s*., carriage extra.

Cases for binding the half year's numbers are also ready. Cloth, gilt lettered, price 2*s*., by post 2*s*. 3*d*.

To be obtained on application to the Manager, accompanied by remittance.

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The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Mar. 8th, 1906.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 2	29·70	W.	...	66	52	46	50	51	Raining
,, 3	30·41	S.W.	0·01	75	49	35	36	37	Foggy
,, 4	30·43	W.	...	87	58	37	39	42	Fine
,, 5	30·10	S.W.	...	76	53	36	42	44	Fine
,, 6	30·30	S.W.	...	95	65	43	50	52	Cloudy
,, 7	30·27	S.W.	...	105	67	48	48	51	Fine
,, 8	29·92	W.	...	54	51	47	47	50	Overcast

During the week marked copies of the following newspapers have been received:—*Lancashire Daily Post, Jarrow Gazette, Derbyshire Times, Morning Leader, Daily News, Daily Telegraph, Cork Constitution, Plymouth Eastern Morning News, Standard, Daily Chronicle, Malvern Gazette, Scarboro' Mercury, Hackney Mercury, Islington Gazette, Islington News, Birkenhead Advertiser, Manchester City News, Leamington Spa Courier, Dublin Weekly Times, Manchester Chronicle, &c.*

Communications, Letters, &c., have been received from—

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F.—Mr. S. E. Farmer, Lond.; Sir Joseph Fayrer, Falmouth; Fifteenth International Congress of Medicine, Lisbon, 1906, National Committee for Great Britain and Ireland, Lond., Hon. Secretary of; Mr. Charles H. Fentiman, Lond.

G.—Mr. F. H. Godsell, Lond.; Mr. F. Greenwood, Portsmouth; Dr. H. M. W. Gray, Aberdeen; Dr. M. H. Gilles, Teeswater, Canada; Guest Hospital, Dudley, Secretary of.

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I.—Institute of Chemistry of Great Britain and Ireland, Lond.; Institute of Medical Sciences Fund, University of London, Hon. Treasurers of; Irish Medical Schools' and Graduates' Association, Lond., President and Council of.

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